

VOL. 8

JANUARY, 1934

No. 1

THE PSYCHIATRIC QUARTERLY

HORATIO M. POLLOCK, Ph. D., Editor

Medical Editorial Board

FREDERICK W. PARSONS, M. D.,

CHARLES BERNSTEIN, M. D.,

CLARENCE O. CHENEY, M. D.,

WILLIAM T. SHANAHAN, M. D.,

GEORGE H. KIRBY, M. D.,

HOWARD W. POTTER, M. D.,

RICHARD H. HUTCHINGS, M. D.,

NICHOLAS KOPELOFF, Ph. D.,

FREDERICK W. PARSONS, M. D., Commissioner

PUBLICATION OFFICE
Utica State Hospital, Utica, N. Y.
EXECUTIVE OFFICE
T. E. McGARR, Manager
18th Floor, State Office Building, Albany, N. Y.

Annual subscription, Quarterly	-	-	\$2.00
Single copies	-	-	.50
Annual subscription, Supplement	-	-	1.00
Single copies	-	-	.25

STATE HOSPITALS PRESS,
UTICA, NEW YORK

20

Medical
direct

TABLE OF CONTENTS

	PAGE
Educational Activities of the Psychiatric Institute. By Clarence O. Cheney, M. D.	5
A Service for Children in a Psychiatric Hospital. By Howard W. Potter, M. D.	16
The Treatment of Dementia Præcox by Continuous Oxygen Administration in Chambers and Oxygen and Carbon Dioxide Inhalations. By L. E. Hinsie, M. D., A. L. Barach, M. D., M. M. Harris, M. D., E. Brand, Ph. D., and R. A. McFarland, Ph. D.	34
B. Tuberculosis in Psychotic Patients. By Nicholas Kopeloff, Ph. D. and E. Loewenstein, M. D.	72
Hereditary and Environmental Factors in the Causation of Dementia Præcox and Manic-Depressive Psychoses. By Horatio M. Pollock, Benjamin Malzberg, and Raymond G. Fuller	77
Mental Mechanisms in Depression. By Joseph R. Blalock, M. D.	98
Trend Situations in Manic-Depressive Psychoses and Their Interpretation. By Oswald H. Boltz, M. D.	111
The Family Constellation as a Predisposing Factor in Psychosis. By Siegfried E. Katz, M. D.	121
Pre-Psychotic Personality of Manic-Depressive Patients. By John L. Smalldon, M. D.	129
Pupil Guidance. By V. V. Anderson, M. D.	148
Some Pertinent Problems in the Administration of Physical Education for the Mentally Ill. By John Eisele Davis, M. A.	158
A Census of the Resident Patients in the New York Civil State Hospitals. By Benjamin Malzberg	167
Book Reviews	189
Notes	220



EDUCATIONAL ACTIVITIES OF THE PSYCHIATRIC INSTITUTE*

BY CLARENCE O. CHENEY, M. D.,

DIRECTOR, NEW YORK STATE PSYCHIATRIC INSTITUTE AND HOSPITAL

In discussing the work of the Institute during the past year, it has seemed that it might be of interest to outline briefly the educational activities that are carried on in the Institute.

Dr. Kirby resigned from the professorship of psychiatry in the College of Physicians and Surgeons on January 31, 1933, and your director was appointed professor of psychiatry and executive officer of the department, effective February 1.

It is felt that the curriculum for psychiatry in the College of Physicians and Surgeons compares very favorably with, if it is not superior to, that in any other medical school in the country. During the second year of the medical school curriculum all of the students are given a course of lectures on psychopathology by Dr. Charles I. Lambert who is professor of psychiatric education at Teacher's College and a member of the department of psychiatry in the medical school. This course to the second year students is not only theoretical but is made dynamic by the demonstration of patients showing specific psychopathological mechanisms. The students, therefore, are introduced comparatively early in their medical course to the study of the individual patient as a whole. This course is given not only to the second year medical students but also to the dental students and is presented in the Institute, with the use of Institute case material.

In the third year of the medical course psychiatry is a major subject along with medicine and surgery. Previous to the current year a clinical clerkship of seven and one-half weeks had been provided, but by a rearrangement of the third year curriculum the present third year is divided into trimesters of ten weeks each and by giving up to another department a ten-hour lecture period previously had in the third year, psychiatry increased the clinical clerkship from seven and one-half weeks to ten weeks so that each student during his third year has a clinical clerkship in psychiatry four mornings a week for a period of ten weeks, that is, 120 hours.

*Presented at the Quarterly Conference, Department of Mental Hygiene, Psychiatric Institute, New York City, December 16, 1933.

From 9 to 10 of each of these mornings, one-third of the class, 33 students, meet in one of the class rooms in the Institute and have a lecture or a clinical demonstration on psychiatric topics. The instruction is given by the members of the Institute clinical staff, all of whom have teaching appointments in the university, or by members of the department of psychiatry attached to Vanderbilt Clinic. Methods of history taking, personality studies and physical and neurological examinations are demonstrated and then the students spent two hours, from 10 to 12, either on the wards or in the out-patient department of the Institute or in the Vanderbilt Clinic psychiatric department, the group of students being equally divided. Instructors are assigned to each three or four of the medical students for supervision of their clinical work with patients. To these small groups further clinical demonstrations are given and the students also make a brief survey of certain selected patients and finally each student is required to make a complete study of an individual patient, including the history, physical and psychiatric examination, with a diagnostic summary and outline of prognosis and treatment. These so-called term cases are selected for presentation by students at group conferences, three three-hour periods being devoted to such conferences at the end of the clerkship. It is gratifying to observe how satisfactorily the students as a whole grasp psychiatric principles during their period of psychiatry and are able to formulate and present diagnostic and treatment principles in the patients with whom they have worked.

This year for the first time, because of the additional period for clerkships, it has been possible to present to the third year medical students during their clerkship, a course on the mental disorders and psychiatric problems in children. Four morning periods during the ten weeks are devoted by each student to clinical examination of children in the hospital service or in the out-patient departments of the Institute or Vanderbilt Clinic. Although there is a feeling on the part of some psychiatrists that third-year medical students are not sufficiently prepared adequately to approach psychiatric problems in children, our experience leads us to believe otherwise. We feel on the contrary that the students have a particular interest in children and a sympathetic understanding of

them, perhaps because they are nearer in their age periods to the children and have not reached that older age of some of us at which our attitude toward children may be influenced by what might be called resentment against the youth and vitality of children, which we ourselves cannot longer enjoy. The students by these clinical contacts not only come to realize definite psychiatric problems but become familiarized with the social problems of adults and children and we feel are definitely better prepared therefore to carry on practice in the community.

Throughout the course the needs and the problems which the practitioner may meet are kept in the foreground. The aim is not to train students as psychiatrists but to prepare them for a wider appreciation and understanding of the problems that they will meet in general practice. The course has to be given three times in the year so that there is for the Institute and Vanderbilt Clinic staff a total teaching time of 360 hours during the third year.

We have had this year to present to the students of the fourth year in a 15-hour course problems connected with children inasmuch as we did not have this opportunity the previous year. Medico-legal problems and information regarding the various types of institutions in the State are also presented to them. During the next academic year it is expected that the fourth year class may have broader problems of psychiatry and their relation to society presented to them in a more satisfactory way.

Although this medical school teaching requires a very appreciable part of the time and effort of the Institute staff, we feel that it is a very proper function of the Institute. Emphasis has been placed for years upon the importance of the general practitioner in the early recognition and treatment of signs and symptoms of impending mental disorder, but at the same time the medical students in their usual curriculum had little opportunity to come in contact actually with psychiatric patients and had little or no experience during their medical course in actually dealing with them. It is through such a psychiatric curriculum as is being carried out here that we believe much may be contributed to the general knowledge of the practitioner, so that he may be better prepared to pre-

vent, or recognize and treat mental disorder and possibly the burden on the State of institutional care may eventually be relieved. The students going out of this school are of course only a small proportion of those being trained throughout the country but we feel very definitely that the curriculum arranged here may set a very good example of the possibilities to other medical schools and may have a far-reaching effect on the place of psychiatry in medical education and practice.

Another function of the department of psychiatry may be mentioned, although strictly speaking it is not carried out by the Institute staff. We refer to the psychiatric teaching carried out by the members of the department on the wards of the Presbyterian Hospital in connection with the medical clerkships of the students, the students having an opportunity to confer with the psychiatrists concerning the cases assigned to them on the medical services. The department also offers consultation service to the attending and resident medical staff of the Presbyterian Hospital and through such contact we feel that psychiatry is being very definitely advanced.

An educational activity which we feel is very important pertains to the post-graduate course in neurology and psychiatry over a period of ten weeks, the course this year having been recently completed. This year 22 from the institutions in the Department and 4 physicians not connected with the Department, took this course. During it the physicians are given through lectures and demonstrations and actual clinical work with patients, an exceptional opportunity to come in contact with a wide variety of psychiatric and neurological topics and problems. An analysis shows that 150 hours are given by the Institute staff to this course, 30 additional hours by members of the department of psychiatry who are not appointed in the Institute, and 200 hours by the teaching staff of the department of neurology, these hours including clinical clerkships in psychiatry and neurology. The schedule calls for a total of 395 hours for a period of ten weeks which means 39 hours a week or approximately eight hours a day with a five-day week.

In addition to the didactic and clinical work the post-graduate students have an opportunity of working up a special topic in which

they are interested or which is assigned to them, one of the main objects of this being training and familiarity with the use of the library for research and investigation. Each physician presents before the whole group in a seminar, the review of a book which has been assigned to him.

We hope that this course reacts favorably on the service of the Department of Mental Hygiene. We emphasize to students that it is not intended to be a presentation of final facts and conclusions on all of the topics discussed but rather that the course is given with the hope that it will be a source of stimulation to physicians taking it to further work and investigation and the weighing of facts and observations so that they may eventually themselves arrive at conclusions and the eventual truth regarding problems in psychiatry with which they may be in contact.

This fall the use of the Institute auditorium has been placed at the disposal of Dr. Frederick Tilney, professor of neurology, for a course of weekly lectures and clinical demonstrations on neurological topics, intended primarily for general practitioners.

We were very glad that because of the hearty cooperation of the institutions in the Department it was possible to arrange for a symposium on the manic-depressive reactions at interhopsital conferences held in April at the Institute and at the Utica State Hospital. At these conferences 25 papers were presented by members of the Institute staff and the staffs of the institutions in the Department. It is felt that these conferences were of distinct value in focussing attention upon certain principles of personality, symptomatology and treatment of manic-depressive reactions. We are gratified to know that the commissioner has approved of holding conferences this coming April, which will be devoted to the treatment of constitutional or functional disorders. We feel that not only are the conferences themselves of value but that the preparation for them affords the physicians an opportunity for concrete studies on the large clinical material in the hospitals that may be of distinct benefit not only to the service, but to psychiatry in general.

Six internes are usually appointed each year for a year's residency in psychiatry. Although their services are, of course, very

useful to the hospital and they receive a nominal salary and maintenance, their period of appointment is looked upon largely as a period of training or post-graduate education and such training by the senior members of the staff is emphasized. Frequent conferences are held with individual internes and weekly staff conferences on the male and female services are conducted in addition to the joint staff conference which is held weekly for the whole staff. The internes have a rotating service on the male and female services in the hospital and also in the children's department. They also have the advantage of attending the post-graduate course as far as is practicable in the work of the hospital. In several instances where all of the interne positions were filled, approved physicians have been appointed as externes to devote their entire time for a period of not less than one year to the training and experience they might receive in the hospital, without receiving maintenance or salary.

Several of the internes have subsequently been appointed to other hospitals in the Department of Mental Hygiene where we hope they will serve with some distinction.

We should like to be able to give a more complete training to internes by adding six months or a year to be devoted to neuropathology, chemistry and bacteriology following the experience on the clinical services, and subsequently a year at a State hospital or one of the State schools. Accommodations and salary provisions are not available at the present time but we hope our plans may be worked out in the future.

A psychiatric residency here is approved as a part of the three-year period of training or post-graduate work that may lead to a degree of master of science in the university, the balance of the three-year period to be made up in a hospital or organization approved for such training by the head of the department of psychiatry. It is possible that eventually this degree of M. Sc. may be changed (after a three-year period) to a degree of doctor of medical sciences which would appeal more we believe, to most graduates in medicine.

A post-graduate course in theory and practice of nursing was given for a six-months' period from February to August, 1933. This course included lectures and demonstrations by the medical,

nursing and social service staffs and rotating assignments for practical experience on the male, female and children's services and also assignments for definite periods to the occupational therapy and the hydrotherapy department in the out-patient clinic. Four nurses took the course this past year and the prospects are that there will be more candidates for a course which we hope to begin again in February.

A course of 14 lectures and demonstration in psychiatry is given by the Institute staff for the Presbyterian Hospital student nurses.

As we have previously pointed out the hospital has on the children's service a school conducted as a special class in the ungraded department of the schools of the city of New York, a special teacher being assigned by the Department of Education. Children are divided into three groups, the kindergarten group consisting of children under the age of six, or those who, because of their mental condition, are unable to profit by the more formal work of the primary and secondary grades. This group spends approximately one hour a day five days a week in the school room.

The primary grade group consists of those children ranging in ages from 6 to 9 or 10 who are capable of receiving instruction in school work from the first to the fourth grade. This group spends approximately two hours a day five days a week in the school room.

The secondary grade group comprises children ranging in age from 9 or 10 to 13 or 14 who are capable of doing school work of grades 4-8 inclusive. This group also spends two hours a day five days a week in the class room.

School work done in the Institute has the same status as work done in the public schools. When a child is discharged a transfer card is made out for him and is sent to the public school to which he will go, in the same manner as though he had moved from one school district to another. We have previously had children of high school age attend the neighboring high school while they were resident here but the possibilities of such educational activity have been rather limited. Recently, therefore, we made a request to the department of ungraded classes for an additional hospital school class of the junior high school type and within the last week such a class has been established with the assignment of a special teacher

who will cover the last two grades of the primary school and the first year of high school work. At the present time there are 14 adolescent patients in the hospital attending this class. We feel that this is a step forward in giving the adolescent patients in the hospital an opportunity for the continuation of their educational activities and affords an opportunity for them to continue more socialized activity or resume it if they have previously lost it through their mental disorder.

Dr. Landis, research associate in psychology, as assistant professor of psychology in Columbia University, gives a course of 36 lectures to graduate students at the university in advanced abnormal psychology. Certain students from this group are selected for a special course given at the Institute, consisting of a series of 36 seminars and the carrying out of a specially assigned piece of work in experimental psychopathology. Last year there were eight such students each of whom made these special studies and the results in four of these cases were submitted for doctors' dissertations and an additional one as a thesis for a master's degree.

The department of psychology in addition, has from time to time a number of volunteer assistants in psychology who devote their entire time to special investigations in the department, of an experimental nature. During the past year there were for varying periods five such volunteer assistants and we might mention that all of them since being here have obtained academic or hospital remunerative positions. The work of the department of psychology continues on an experimental rather than a clinical basis. Contributions by the department and by students trained in it, have been presented at meetings of the Federation of American Biological Societies, the American Psychological Association, and published in psychological journals, and a number of contributions are in the process of completion for publication in the *PSYCHIATRIC QUARTERLY*.

In the department of neuropathology a four months' course in neuropathology is available to physicians in the Department of Mental Hygiene, designated by their superintendents, and to other outside physicians in the university who register for the course. Because of the lack of candidates the course was not given last year

and it is uncertain whether it will be given this year, for the same reason.

Dr. Ferraro, research associate in neuropathology, is associate professor in neuropathology in the New York Post-Graduate Medical School and gives a course of lectures in neuroanatomy and neuropathology in the department of that school.

In the department of neuropathology, there are two physicians on a voluntary basis who are making special studies and contributing not only to the work of the department but to their own experience and training. The department has also trained several technicians in neuropathology who had worked on a voluntary basis, two of whom have received appointments in institutions in the Department of Mental Hygiene.

Dr. Brand, research associate in chemistry as associate professor of biological chemistry in the university, keeps in close touch with the department of biological chemistry in the medical school. The members of our department attend the seminars of the latter department. In collaboration with Dr. Harris, research associate in internal medicine, Dr. Brand has carried out during the past year, special metabolic studies in the myopathies; the work was aided in part by a grant from the Chemical Foundation. Time does not permit a detailed discussion of these studies and the leads that they have given for future research but interesting differences in the metabolism of patients suffering from muscular dystrophy and other neuromuscular conditions were brought out and it appeared that the metabolic effects of the feeding of glycine might be of importance in differential diagnosis. The results of this study were presented at the section of nervous and mental diseases at the American Medical Association meeting in June in Milwaukee and an extensive exhibit was made at that meeting. Dr. Brand also presented this topic at the graduate fortnight at the New York Academy of Medicine this fall and an exhibit that was presented at that time. It was considered that this discussion and exhibit were of distinct educational value.

The department of bacteriology prepared an exhibit on the therapeutic uses of *lactobacillus acidophilus* also at the graduate fortnight.

The studies carried out by Dr. Kopeloff in the department of bacteriology with particular reference to bacillus tuberculosis, will be reported by him in a communication at this meeting. We may mention however, at this time, that cultural methods being used by him have demonstrated a rapid determination of the presence of tubercle bacilli in the spinal fluid in at least one case of tuberculous meningitis. Contacts have been made with various hospitals, offering them an aid in a comparatively early diagnosis by cultivation of bacillus on the medium used.

In the occupational therapy department the educational activities are stressed. Concerts have been given at the Institute by students of the music department of Teacher's College. The convalescent women patients have made weekly visits to the museums of the city, the directors and staff members of the various museums having been very cooperative in making these visits possible and providing instructors and guides. Lectures have likewise been given to the patients by members of the staffs of the Metropolitan Museum and the Brooklyn Museum. Moving pictures of an educational nature are received regularly from the Museum of Natural History and are shown for the benefit of the patients. For the children, weekly trips have been made to the nearby public library at a time when the librarian was able to give special attention to the group. The children have also had opportunities to visit the Museum of Natural History and to hear illustrated talks given by the instructors on the staff of that museum. Story-telling hours provided through the cooperation of the director of children's libraries of New York City have also formed an important part of the program for the children and have been of educational value.

Educational activities of the department of social service were resumed this fall in the practice training of the students of the New York School for Social Work which finances the supervisor of the students, who is appointed by the Institute and cooperates with the chief social worker in the supervision. Eight students were assigned by the New York School, for three or more days a week for six or eight months. The workers in the department are in close touch with the social service workers in the Neurological Institute and the Vanderbilt Psychiatric Clinic where there are

likewise supervised student workers and a cooperative educational program has been worked out. Staff conferences held at the Institute are attended by this entire group of workers. Lack of working space has limited the number of students that we can accommodate. We have regretted having to decline on this account requests for assigning student trainees from other schools for social work.

Finally and perhaps by no means least, the Institute has afforded training and experience for graduate dietitians from the Pratt Institute, in our dietetics department. These graduate students for a period of six months have been afforded training and experience in the preparation of special diets for hospital patients and have become familiarized also with the procedures of estimating, ordering and vouchering in the Department of Mental Hygiene, so that it has been possible to recommend them for special attendant positions as dietitians in the State institutions.

I have tried briefly to point out some of these activities that we look upon as educational in the various departments of the Institute. Although these activities make demands upon the time of the Institute personnel we feel that in them we may be contributing materially to the education and training and value of a fairly large group of individuals in various walks of life. It is gratifying to us to be able to afford these opportunities through the understanding and stimulating cooperation of the Commissioner of Mental Hygiene and the spirit of enthusiasm of the personnel of the Institute who contribute so much to the accomplishment of these educational activities.

A SERVICE FOR CHILDREN IN A PSYCHIATRIC HOSPITAL*

BY HOWARD W. POTTER, M. D.,

ASSISTANT DIRECTOR, NEW YORK STATE PSYCHIATRIC INSTITUTE AND HOSPITAL,
NEW YORK CITY

It is the aim of this communication to discuss our five years of experience with a service for children at the Psychiatric Institute, particularly as it may be related to the organization and functioning of a similar service in any psychiatric hospital. It must be very clearly borne in mind, however, that although we have not limited the admissions to the children's service at the Institute to one particular diagnostic category, yet nevertheless, it has been our policy not to accept for hospitalization such cases as would obviously require an unusually prolonged period of residence in the hospital and not to retain within the hospital those cases who do not respond to treatment within a reasonable period of time. It is thus apparent at the outset that, with an occasional exception, the type of problem to be found on our children's service is likely to be one which would respond to treatment within a period of six months.

Our experience has shown us that aside from the definitely mentally deficient group who require continued care or a period of several years re-training in a school for the mentally deficient, there is a group of children for whom psychiatric hospital care and treatment should be provided.

TYPES OF SERVICE PROVIDED

We have organized the children's service at the Institute to meet the following needs:

(1) *Diagnosis*—There are three situations in which a brief period of study and treatment in a hospital are particularly desirable:

a. There is a group of children in which some underlying physical condition is suspected as being the basis for the behavior problem. In certain of these cases special study under controlled conditions is essential. These studies may comprise a particularly thorough neurological examination and extensive laboratory or X-ray investigations under controlled conditions.

*Presented at Quarterly Conference at Psychiatric Institute and Hospital, December 16, 1938.

b. In another group requiring a period of diagnostic study in the Institute are those children under the ages of 5 or 6 whose mental reactions invalidate psychometric test results and in whom it is necessary to have a period of careful observation of their behavior and mental responses in order to differentiate an inherent intellectual incapacity from an intelligence that is incapacitated by an emotional disorder which may be amenable to therapy.

c. In another group of children who are admitted for diagnostic purposes there are those who present a known organic defect but in whom it is essential to determine how much of the behavior difficulty may be directly attributed to the organic defect and how much is secondary to over-solicitude or spoiling on the part of the parents. In such cases observation over a period of two or three weeks usually suffices to evaluate the relationship of the organic difficulty to the behavior disorder, and thus the formulation of a suitable plan for treatment is facilitated.

(2) *Treatment*—There are four types of acute problems for which we have found the children's service in the Institute offers important facilities for treatment.

a. There is a group of children who are so seriously disturbed in their conduct that they cannot be cared for at home and treated in an out-patient department with safety to themselves or others. In this group are those who absent themselves frequently from home or school for days at a time and those who are extremely belligerent, destructive, and emotionally unrestrained or unstable.

b. A second group consists of those who have marked neurotic or psychotic reactions which render them incapable of making any kind of satisfactory adjustment at home or at school and who require more intensive and extensive psychotherapy than can be given in an out-patient department.

c. A third group are those who have behavior disorders or neurotic symptomatology which by themselves are not sufficiently severe to interfere with their being treated in an out-patient department but the home situation is so difficult that hospitalization relieves the tension of the entire situation by giving the child a vacation from his family and the family a rest from the child. By so doing, both the child and the family can be treated more readily.

d. There is a small group of children for whom boarding home or foster home care is the obvious solution but the children have certain behavior difficulties or neurotic symptoms which should be treated psychiatrically before boarding home placement can be successfully consummated. At the same time by hospitalizing the child an opportunity is given for the social service department to secure the complete cooperation of the family and for the psychiatrist to indicate the type of boarding home desirable so that when boarding home placement is effected the family will be able to accept it emotionally as well as intellectually and the placement will be made, not blindly, but with the needs of the child clearly in mind. In such instances we have found it advisable to have the responsibility for placement and the legal procedures complied with before the child is admitted to the hospital.

ADMISSION PROCEDURE

Our experience has demonstrated that the entire admission procedure is of fundamental importance to the treatment situation. Although we realize that there may be instances in which the community will have to seek hospitalization for certain children regardless of the child's or the parents' wishes in the matter and thus a formal commitment will have to be resorted to, nevertheless we believe that such a form of admission should be discouraged and only agreed to where no other means are available. All of our children are admitted on a minor's voluntary basis, that is, a parent signs a request that the child be admitted to the hospital and indicates that 10 days' notice in writing will be given before the child is withdrawn from the hospital. We have found it advisable, even when the parents have insisted on the removal of a child contrary to the best interests of the child, not to enforce the 10-day clause in the minor's voluntary agreement as such enforcement accomplishes nothing and merely amounts to a display of authority. It is gratifying to note how easy it is for parents to accept the advice and suggestions of the doctor when the question of a premature removal of a child from the hospital has been brought up.

It should be clearly appreciated that all psychiatric problems in children require, as an important part of the treatment plan, the

full cooperation and interest of the family. If the family feel that they themselves have sought hospitalization for their problem child and that they themselves have the full responsibility for the admission and continued residence of the child in the hospital, their resistances against the hospital are not apt to be outstanding and to interfere with efforts at treatment. For this reason we feel we are justified in giving appointments for agency and school cases only in instances in which the agency or school have succeeded in stimulating the parents' interest in the problem to a point where the parent either makes the appointment directly or consents to the appointment being made for them, in either instance the parent always accompanying the child to the hospital.

It is also important to take the child into one's confidence regarding the matter of admission to the hospital. Children as a rule accept hospitalization with as much facility, and sometimes even more readiness, than do adults. We have found it advisable for the admitting physician to interview the child before interviewing the parents if the child is over 10 years of age. This is done even though the physician has no previous knowledge of the problem. This procedure makes for a better relationship with the child as it often means to the child that it is the first opportunity he has ever had to tell his story first. Whether what he tells is fact or fiction is of no importance. What we are striving for is to put ourselves in right with the child from the start. With this procedure the matter of admission to the hospital is often tentatively settled with the child before the parent is interviewed.

Seldom do we have a scene fraught with hectic emotionalism on the admission of a child to the hospital. The quiet, unhurried informality of both doctors and nurses in the admitting unit and a simple explanation of why hospitalization is advised and what it means and how it may be helpful usually is effective in forestalling an undue amount of emotional display either on the part of the parent or the child. In the occasional instances that the physician suspects that the child might create a scene, both the parent and the child are escorted by a nurse to a room remote from other children and their parents who may be waiting for an interview and there the arrangements are completed for admission.

AGE AND SEX OF HOSPITAL ADMISSIONS

The children's service at the Psychiatric Institute has found it necessary to accept children ranging in ages from 3 up to adolescence. Our experience with respect to both hospital admissions and all children coming to the out-patient department for an initial interview shows that the number of children tends to increase as the age level rises. Of 165 children under the age of 14 admitted to the children's hospital service to date, 86 were under the age of 10 and 79 ranged from the age of 10 to 14. Table I shows these age groupings in detail.

TABLE I. AGES OF CHILDREN ADMITTED TO CHILDREN'S HOSPITAL SERVICE

Age, years	Male	Female	Total
3	0	3	3
4	5	1	6
5	3	4	7
6	8	7	15
7	10	8	18
8	10	4	14
9	15	8	23
10	15	5	20
11	11	6	17
12	16	6	22
13	14	6	20
Total	107	58	165

Our experience has shown that about two-thirds of our admissions are boys and one-third girls. We do not have an adequate explanation for this difference.

DURATION OF HOSPITAL RESIDENCE

In general the briefer a residence can consistently be the better it is for the child. Institutionalization is a very real danger to be avoided. Even those children who have relatively brief residences in the hospital should, as soon as possible, and whenever practical, spend their weekends at home. Well over half of the children at the Institute at any one time are spending weekends at home.

Table II shows the details of hospital residence. Of 135 children

under the age of 14 discharged or paroled, 60 spent less than 3 months in the hospital, and 37 from 3 to 6 months, making a total of 97 or 72 per cent whose hospital residence was for a period of less than 6 months.

In general the length of residence depends upon the nature of the problem presented by the child. Children who are admitted for diagnosis naturally have the shortest residence time. Next are those with distinct psychoneuroses, next those with behavior problems of a psychogenic or environmental nature, and finally those behavior problems due to an organic disease of the central nervous system, and the frankly psychotic.

TABLE II. RESIDENCE IN HOSPITAL OF CHILDREN PAROLED AND DISCHARGED FROM CHILDREN'S HOSPITAL SERVICE

Time in hospital, months	Male	Female	Total
Under 1	8	6	14
1 to 2	16	19	35
2 to 3	10	1	11
3 to 4	8	5	13
4 to 5	6	4	10
5 to 6	12	2	14
6 to 7	5	4	9
7 to 8	3	0	3
8 to 9	3	2	5
9 to 10	5	1	6
10 to 11	0	2	2
11 to 12	0	0	0
12 to 15	5	2	7
15 to 18	2	0	2
18 to 24	3	1	4
Total	86	49	135

POINTS TO BE CONSIDERED IN THE CONSTRUCTION, PLANS, AND EQUIPMENT FOR A CHILDREN'S PSYCHIATRIC SERVICE

If our experience at the Institute can be generalized upon, it is necessary to provide for children ranging from the ages of 3 up to adolescence. If adolescents, that is, boys and girls from 14 on up through the high school age levels, are to be regarded as a part of

the children's service, then it should be planned for them to be cared for in a unit separate from those in the pre-adolescent ages. At first we attempted to care for adolescents and pre-adolescents on our children's service, but soon found that it did not work as the two groups are not adjustable to each other. It is to be borne in mind that, in this paper when we refer to a children's service, we are referring to a service for children who are seldom older than 12 or 13 years and who by and large have not yet entered puberty.

In planning for a building to house a children's psychiatric service, it is necessary to think in terms of sex, age, and behavior. For each sex there should be a unit for the younger group, that is for those children below the age of 9 or 10, as their physical size, play interests, and the amount and kind of nursing attention set them apart from the older group. There should be two units for those ranging from the ages of 9 or 10 up to 12 or 13. One of these units should be set aside for those who have more severe behavior disorders and psychotic reactions and the other for those whose behavior is less disturbed and those with psychoneurotic manifestations. Certainly with an acute service such as we have at the Institute, it does not seem advisable to attempt to handle a group or unit of more than 20 problem children at the maximum. We have also found that the provision of single room accommodation to the extent of about 33 per cent of the total bed capacity has worked out satisfactorily. Each unit, of course, should have its own day room and lavatory accommodations. Attention should be given to the height of washbowls, urinals, and other such accessories in the unit for the smaller children.

The equipment for the wards should be in keeping with the age range of the children. Ample play equipment should be provided, including a small indoor gymnastic outfit, which is more satisfactory if constructed by the mechanical department of the institution rather than purchased on the market, a play house in the corner of the girls' day room, a sand box for the smaller children, a small library of selected books, a supply of games for various ages, a set of Schoenhut blocks for boys, several pairs of roller skates for both boys and girls, dolls for the girls, two or three tricycles

for the smaller children, one or two wagons, and other suitable play equipment.

The ward furniture should be durable. We have found by experience that reed and wicker wear is not practical. For the younger group of children beds and ward furniture smaller than the standard may be secured.

Although the facilities at the Institute do not afford a continuous bath on the children's service, nevertheless, such facilities should be provided.

A room for occupational therapy for approximately each 30 children and a school room for each 30 children should be planned for.

In the occupational therapy room simple looms should be provided, plenty of tools and material for carpentry, a few paints, plasticine for modeling and sewing material are the most important.

The school room should be provided with removable, adjustable desks and ample blackboard space.

We have found it especially important to give considerable attention to dining room facilities and service. At the Institute two dining rooms are provided and we find it especially convenient to utilize one of these dining rooms for those children whose table manners and habits of eating and behavior in the dining room are not particularly acceptable. The children graduate, as it were, from this dining room to the one in which the children are more successful in observing table conduct. The dining rooms should be furnished with small tables, each seating not more than four children. A requisite number of the tables and chairs should be of a height suitable for the smaller children. It is important to get tables with tops which will stand usage and not become scarred and unsightly. We have found linoleum topped tables with an attractive pattern very satisfactory. It might be said parenthetically that a table with a top of an attractive design which can be kept clean is far more satisfactory than table cloths which cannot be kept tidy unless they are changed after nearly every meal. Attractive but durable chinaware and the absence of metal dishes or cups lends a desirable atmosphere.

The nurses' office should be located so as to give a clear view of the entire day room.

It is desirable to plan the building to facilitate, under adequate direction and supervision, the free intermingling of the boys and girls at play, school, occupation therapy, and in the dining rooms.

In addition to the building itself, careful consideration should be given to ample playground facilities. Access should also be had to a gymnasium for certain periods during the day. If access to the physical therapy department of the parent institution is not convenient, provisions for such facilities should be incorporated in the plans.

Some attention should be given to the matter of interior decoration. These should be such as to create an atmosphere of cheerfulness and brightness and a stenciled border of children's story book characters lends an added touch. Suitable pictures securely fastened to the walls of the wards will aid materially in toning down the hospital atmosphere. The occupational therapy department can work out projects which can be utilized for interior decoration purposes.

In addition to the physician's office there should be an examining room, access to which may be had other than through the physician's office. The examining room should be equipped for the usual careful and thorough physical examination and for minor surgical treatments. The physician's office should be equipped with a filing cabinet for case histories as well as the usual office furniture. A third room should be provided for the use of the physician which should be furnished with a simple table, a small chest of drawers, two chairs, a small couch, and if possible, with running water and a washbowl. The chest of drawers should hold a collection of carefully selected play material which would likely facilitate the child in expressing his problems through spontaneous play. It is advisable, if possible, to have the special play room somewhat removed from the wards themselves. The reasons for this will be discussed later.

An examining room for the psychologist, remote from noise and distraction, should be provided and should be well equipped with a variety of test material.

PERSONNEL

Physicians.—The physician in charge of the children's service should be able to devote his entire time to the children's work. His work may not only concern itself with the hospital service, but with the children's division of the out-patient department or the child guidance clinic of the hospital. The number of physicians required for a children's service depends entirely on the nature of the clinical problems of the individual children. A children's service which is comprised largely of organic problems does not require near as much of the physician's time as one which mainly cares for children whose problems are essentially non-organic. At the Institute, where we have a service consisting largely of non-organic behavior problems and children with psychoneurotic reactions, we find that there are approximately 75 hours a week devoted by the physicians to the children's service with an average daily population of approximately 25 patients.

Nurses.—It is a rare thing indeed to find a nurse who has been trained specifically for caring for children who present psychiatric problems. The selection of nurses for the children's service is particularly important and only those who have a real interest in children should be detailed to the children's service. A sense of humor, enthusiasm, a tremendous amount of patience, and considerable objectivity are important assets. It is necessary for the physician in charge of the service to hold frequent conferences with the nursing staff for the purpose of discussing practical problems arising in connection with the management of the children. We have found it advisable to have one nurse on duty for each 10 or 12 children. The total number of nurses, therefore, to be assigned to any children's service will depend on the number of hours, time off duty, number of children, and, to a certain extent, the architectural arrangement of the building. It must be kept in mind that the nurse is essentially a mother surrogate and should be able above all to give each child the emotional security that he needs. For the boys there should be two or three male nurses according to the size of the service. We have found it feasible, however, to have the boys' as well as the girls' wards headed up by female nurses. We

have also found it desirable for the nurses to wear smocks rather than the regulation nurses' uniform.

Occupational therapists, school teachers, physical instructors.—What has been said about the personality of nursing personnel applies to teachers, occupational therapists and the physical instructor as well. It is important that both the occupational therapist and the teacher have the attitude that the child and his emotional reactions are more important than the accomplishment of a certain amount of work. The occupational therapist should, insofar as possible, leave the choice of the work to be done to the child and even then avoid taking too active a role, the object being to help the child in his work rather than actively direct him. Many children will utilize the occupational therapy room to work off some of the emotion arising from their conflicts. Thus, a child with a considerable amount of sadism in his character, will derive considerable benefit from working with a hammer and nails and a saw.

The school teacher's problem is to avoid situations in the class room which might intensify the child's feeling of inferiority. In dealing with problem children she must also have a great deal of patience and relinquish some of the ideas of discipline so characteristic of school teachers in general. She must have, in other words, a dignity which is not too easily offended by infractions of school room discipline.

A female physical instructor can work out satisfactorily with all children although the probabilities are that for the older boys a male instructor would be more satisfactory if one were available. The female instructor should be capable of maintaining a reasonable amount of discipline and at the same time create enthusiasm in the children for their gymnasium period. Setting up exercises, marching games and other group games in which all can compete with reasonable equality are of value.

Social service.—The services of a social service department, consisting of trained psychiatric social workers, is invaluable. Practically every case admitted to the children's service requires the collaboration of the social service department. The social worker's function is largely that of making a careful social study of the

case, the modification of faulty attitudes of parents and others, and effecting changes in the environment where these are indicated.

Psychologist.—A psychologist, preferably with child guidance clinic experience, is indispensable. The psychologist's function is not only related to making psychometric studies, but to carrying out special therapeutic educational work with individual children as well.

TREATMENT

The outstanding fact which has developed out of our experience is that treatment for a group of problem children such as we have had and have now at the Institute meets with success only to the extent that we are able to individualize it. Before a treatment plan can be outlined it is essential that we secure an understanding of the significance of the symptomatic behavior and before any treatment plan is effective it is essential that some individual, preferably the physician, establish rapport with the child. Rapport, confidence, or transference, by whatever term it may be called, is the basic factor underlying all psychotherapy and a good deal of re-educational therapy.

Treatment may be divided into several categories consisting of re-education, physical and pharmaceutical therapy, direct psychotherapy, and social therapy. All of these therapeutic measures are likely to be used in any case.

a. Re-educational therapy consists in prescribing a full daily regime for each child. We have found it of value to have each child's time throughout the day pretty well accounted for. Re-educational therapy concerns itself with establishing good habits with regard to sleeping, eating, personal cleanliness, school attendance, responsibility for simple ward chores, play, and other socially useful behavior. To the nurses, teachers, and occupational therapists falls the major part of such therapy. Quiet objectivity, emotional control, the ability to foresee and avoid the creation of difficult situations and an attitude of expectancy of compliance with only a minimal display of authority are basic factors in the success of any re-educational program.

We have found it of value to group our children for re-educational therapy according to their age and mental capacity.

In the school it has worked out well to divide the group in accordance with their educational needs and capacities. We have consequently three subdivisions—the kindergarten group, a primary grade group including the first four grades, and a secondary grade group including grades from 5 to 8 inclusive. Particular attention is given to children with special mental disabilities, particularly disabilities of reading. The educational work of the psychologist has been an important factor with these children as it is not possible for the teacher to give the required amount of individual attention to such children and as the technic is highly specialized, the psychologist has supplemented the work of the school room by giving individual instruction.

For occupational therapy, the children have been divided into five different groups. In our occupational therapy department we have stressed the use of occupational therapy as a means for giving the child an opportunity to sublimate some of his emotional drives. Having in mind this approach, the choice of occupational therapy work is left largely to the child and he is encouraged to work out his own projects, the occupational therapist being present to give the child whatever assistance he may need.

Through the joint efforts of the school teacher and occupational therapist the children are given the opportunity for dramatic expression by means of plays at frequent intervals throughout the school year. In some instances the children have improvised their own plays.

The physical education program is carried out by the instructor of physical education through drills, competitive games and singing and marching games in the gymnasium.

Other educational activities are scheduled weekly. These consist of educational movies obtained from the American Museum of Natural History, educational talks in story form by persons trained for this purpose and secured from the public library, museums and other such centers, visits to a nearby branch of the public library with the teacher once a week and on Saturdays a selected group of children go to a nearby cinema or to some point of interest such as the zoo, the aquarium, or one or another of the various museums in the city. Advantage is also taken of such annual features as the

circus, the Thanksgiving Day Macy parade, a big league baseball game, etc.

The chief handicap which we have found in our facilities for the children at the Institute is the fact that we have absolutely no playground space. As a result of this the periods of free play which the children have on the wards are apt to impress any visitor as being rather noisy and somewhat disorderly. As the children do not have the opportunity to work off their excess energy out of doors, we have partially compensated for this by being unusually liberal in allowing children to go out of the building to play in Riverside Park or other nearby parks unaccompanied. There are, of course, certain risks involved with this sort of procedure but in our five years' experience it appears that these risks are theoretical rather than actual. All children are taken for daily walks by the nurses.

Another important part of our re-educational system is our liberal policy of allowing children to spend their weekends at home as soon as it seems advisable. We believe it is important to keep the child and the family in touch with each other even though there are present unfavorable family situations.

We are often asked the question as to what we do for discipline or punishment. Punishment can be dismissed by saying that it is not a part of the vocabulary in use on the children's service. Insofar as discipline is concerned, each child is expected to follow the routine laid out for him. Naturally with the types of problems that we have in the Institute the child does not always follow the routine. We have found that this is managed successfully by a combination of patient persuasion and judicious neglect. We seldom resort to removal of privileges as a disciplinary measure because we found in actual practice that it did not work. In many cases it only tended to build up further resentment and increase the behavior difficulty. The only active disciplinary measure used, and that is used only where the child's behavior is so extreme that the safety of the other children is involved or destruction of hospital property is imminent, is isolation. When a child becomes thus upset he is quietly taken by the nurse, forcibly if necessary, and put in his room. He is told that as soon as he has calmed down he may

come out of his room and be with the group again. He may thus spend a period ranging anywhere from 15 minutes to an hour in isolation. Seldom, however, probably not more than half a dozen times a year, is it necessary to lock the door to the room. The nurses must learn to distinguish, however, the difference between non-volitional, or what might be termed psychically determined difficult behavior or non-conformity to the routine, and behavior which is essentially volitional. The latter type, which is not so commonly experienced here, must be dealt with directly and promptly.

It is important to bear in mind that many behavior disorders in children very clearly have a large element in them of a play for punishment. This need for punishment arises from a pathological feeling of guilt and consequently if it is fed it only intensifies the problem. Hence, it becomes important to attack the fundamental problem by some form of direct psychotherapy and at the same time to utilize re-educational therapy in a constructive way and guard against measures that might be employed in re-educational therapy which might be destructive. To illustrate this let us turn to everyday medical experience. If a person has a skin lesion which burns and itches, the itching impels him to scratch it. If he scratches it, and the more he scratches it, the worse the lesion becomes. Consequently one does not prescribe scratching as a cure for the lesion. In the same way many of these children have a psychological lesion which is accompanied by a feeling of guilt. The feeling of guilt, as it were, produces the itch for punishment. If punishment is forthcoming, true, the feeling of guilt is temporarily allayed, but the psychological lesion is not helped thereby. This leads us directly therefore to another form of therapy—direct psychotherapy.

b. Direct psychotherapy with children is still in an experimental stage. However, we are convinced that it has a very important place in the treatment of personality and behavior problems in children. The primary requisite to all direct psychotherapy is to secure the confidence and to gain rapport with the child. It sometimes takes many hours to develop this alone. The psychiatrist must be particularly careful to avoid by what he says or in his manner any indication of censorship. Thus he must not represent the severe punishing father. He must be careful not to force the situa-

tion. Although, for instance, he may have definite information concerning some aspect of the child's sex behavior which is pathological, he seldom can risk his contact with the child by a direct approach to this topic in the interview. The mere broaching of this topic or any other topic which involves what the parents or others have regarded as particularly bad is often interpreted by the child as meaning that the psychiatrist also thinks in the same terms as the parent does. This will only intensify the child's feeling of guilt and no success will be met with in getting the child to discuss such behavior. Consequently, it sometimes is necessary to spend many hours in what appears to be a waste of time in talking about what seem to be non-essential things. It has been found, however, that children will eventually discuss those things which are most important to them. These almost invariably are those very things which the family have complained of. There are three different technics which may be used in direct psychotherapy with children. These consist of the ordinary interview technic in which there is an exchange of ideas between the physician and the child; the phantasy method which is applicable to those children who have a rich phantasy life and who by means of their phantasies disclose their problems and through their phantasies discharge the emotional tension; the play technic in which the child is given the opportunity to use various playthings in spontaneous play with the presence of only the psychiatrist and through such spontaneous play the child lives through in a symbolic fashion, whatever his problems may be and is enabled to relieve emotional tension. Thus, for instance, the child who has a particularly severe feeling of jealousy toward his baby brother and about which he has developed a great many feelings of guilt, can often get a release for these jealousy feelings by making a plaster model of a human figure which he not infrequently will even name and then proceed to cut it into pieces and throw it out the window with a great show of emotion during the whole procedure.

We have had some interesting but difficult situations arise in reference to direct psychotherapy. When one psychiatrist is intensively treating several children there have been times when extreme jealousies develop between these children. We have found that this

situation is avoided in a large extent if the psychiatrist arranges to interview the child in a room remote from the ward. The child is taken to the psychiatrist by the nurse and although the other children undoubtedly know where he goes, it nevertheless is not so obvious to the others as when the psychiatrist holds the interview in the physician's office on the ward.

One must not fail, however, to take into account that the child may have certain physical factors which require treatment. Therefore, in conjunction with the re-educational program and direct psychotherapy there are cases which require physical therapy and the use of pharmaceutical preparations.

c. The most important aspect of physical therapy is that related to sedation. We have not used the continuous bath, mainly because we do not have a continuous bath available on the children's service. We have found the warm pack of value in selected cases. Those children who are extremely overactive and tense often respond well to a routine warm pack given for two hours twice a day over a period of several weeks. We would particularly caution against the use of the warm pack as an occasional measure used to meet an emotional outburst. In other words, if the warm pack is utilized it should be used over a period of time or not at all. If used otherwise it is bound to be interpreted as a punitive measure both by the children and by the nurses and probably even by the doctors.

We have used diathermy with considerable success in certain cases. Some children who are restless and overactive will readily go to sleep on the autocondensation pad and will sleep for as long as two hours. Heliotherapy is used quite extensively to combat secondary anemia and is often used in conjunction with cod liver oil products. We have not used tonic hydrotherapy to any extent.

We have used little in the way of pharmaceutical preparations except those commonly used for coughs and colds and other intercurrent conditions. We have at no time resorted to sedative drugs except the occasional use of sodium amytal for experimental purposes. Endocrine therapy has been used when indicated but in our experience we have found no relation between the exhibition of endocrine therapy and improvement in behavior.

Thus far we have been discussing treatment which is directed

toward the child himself. We must keep in mind, however, that this child is not a permanent resident in the hospital and will have to return to his home. Therefore, the treatment of the home situation and its problems is of equal importance to the treatment of the child. This brings us to the discussion of social therapy.

d. A social worker is assigned to practically all cases within a few days of admission and makes a contact with the family. Her contact results in a careful study of the social factors in the family group and those outside of the family group which are relevant, and an evaluation of the emotional relationships of the various members of the family to each other and to the child. Then under the direction of the psychiatrist an attempt is made to give the parents concrete suggestions as to how to deal with the problems in the child and with this an effort is made to secure a modification of faulty attitudes on the part of the parent which underlie faulty management. Close cooperation between the psychiatrist and the social worker is especially important.

In conclusion, it is to be pointed out that work of this sort and particularly the organization and functioning of a service for children in a psychiatric hospital is in an experimental stage. Above all one cannot run a children's service by rules and regulations. The arrangements must be kept elastic and all those involved should thoroughly understand that what is planned for and put into operation today may well have to be discarded tomorrow.

What the results of work of this sort are we are not yet prepared to state. That we do have individual cases in which the results have been unusually good is a fact and that we have individual cases in which the results have been discouraging is also true. It is our plan, after a reasonable length of time has elapsed, to make a careful follow-up study of all children who have been treated on the children's service of the Institute.

And finally I would suggest that those of us who work with children occasionally nibble the magic mushroom which Alice nibbled so that we too might grow small now and then and thus be able to see life from the child's point of view.

THE TREATMENT OF DEMENTIA PRAECOX BY CONTINUOUS OXYGEN ADMINISTRATION IN CHAMBERS AND OXYGEN AND CARBON DIOXIDE INHALATIONS*

BY L. E. HINSIE, M. D., A. L. BARACH, M. D., M. M. HARRIS, M. D.,
E. BRAND, Ph. D., AND R. A. McFARLAND, Ph. D.

HISTORICAL SURVEY AND METHODS

In 1929, Loevenhart, Lorenz and Waters¹ reported that brief periods of inhalation of 30 to 40 per cent carbon dioxide with oxygen induced short periods of mental clarity and intelligent responsiveness in certain cases of dementia praecox of the catatonic form. The patients were first exposed to a mixture of 10 per cent carbon dioxide and 90 per cent oxygen. The carbon dioxide concentration was increased 5 per cent each minute until a 30 or 40 per cent concentration of carbon dioxide was obtained. This was administered for one to two minutes when general anesthesia was produced in the patient. These high mixtures of carbon dioxide and oxygen resulted in severe hyperpnoea, elevation of the systolic blood pressure to very high levels and a marked increase in the pulse rate. At the conclusion of the treatment, a period of muscular relaxation and increased cerebral activity occurred which lasted from 2 to 25 minutes, when a return to the original state took place. These results were confirmed by Kaufman and Spiegel,² Solomon, Kaufman and d'Elseaux,³ Lasche and Rubin,⁴ Leake, Guedel and Botsford⁵ and others. In most instances, stuporous, mute and resistive patients became temporarily active and communicative.

The effects of the high carbon dioxide and oxygen mixture were explained by Loevenhart and his co-workers as being due to a decreased oxygen fixation of the cerebral tissue cells similar to that obtained by sodium cyanide. However, it has been shown by Warburg and Meyerhof⁶ that tissue cells use more rather than less oxygen in the presence of carbon dioxide. Furthermore, it is apparent from the shape of the oxygen dissociation curve of hemo-

*This research project was carried out at the New York State Psychiatric Institute and Hospital, in cooperation with the Department of Practice of Medicine, College of Physicians and Surgeons, and with the Department of Psychology, Columbia University.

The study was aided in part by the Linde Air Products Co., who donated supplies of oxygen, and in part by funds raised by Mrs. W. Averell Harriman.

globin that more oxygen is available for the tissues in the presence of carbon dioxide.⁷ The first effect of administering carbon dioxide and oxygen might, therefore, seem to be an increased tension of oxygen in the cortical cells. The withdrawal of carbon dioxide and oxygen was supposed to result in a relatively anoxic state in the cortical cells which was thought to produce the response in the patient. It seemed to us more in accordance with previously known physiological data concerning oxygen deficiency in the human body to believe that the patient's response to inhalation of oxygen and carbon dioxide might be due to the provision of an *increased* tension of oxygen in the cortical brain cell. This point of view was also maintained by Freeman⁸ who suggested that the "manifestations of schizophrenia may tentatively be explained, from a biochemical standpoint, on deficiency in oxidative processes in the cerebral cortex" and that "there appears to be, in schizophrenia, a generalized inherent tendency to deficient oxidative processes."

Physiological effects of oxygen-want have been elucidated mainly by the studies of Haldane,⁹ Barcroft,¹⁰ and Schneider, Truesdell and Clarke,¹¹ both by observing the action of human beings exposed to low oxygen concentrations in chambers and by their behavior at high altitudes. The mental effects of oxygen-want have been observed at high altitudes and in chambers in which the concentration of oxygen is reduced. These changes have been carefully observed by McFarland.^{11a} The more characteristic symptoms are the following: motor unrest, staggering gait, deficient coordination in the finer movements, loquacity, casualness, poor orientation, lack of self-criticism, underestimation of danger and overestimation of personal capacity, retarded perception, perseveration and reiteration, absence of ethical inhibitions, and a partial or complete amnesia as to what has occurred. In more severe oxygen-want, hallucinations and delusions appear, and finally stupor and unconsciousness. It is rather remarkable that these symptoms may appear without the individual feeling ill. When oxygen is added so that a normal concentration is breathed, the symptoms disappear. There is, therefore, a rational basis for concluding that at least under certain circumstances mental disturbances may be associated with a deficient supply of oxygen. Certain irrational states which occur

during the course of clinical illnesses such as pneumonia and heart disease, may be dependent upon anoxemia.

The symptoms which have been enumerated above are also precisely those which occur in ordinary drunkenness. Palthe¹² has recently shown that these symptoms may be relieved by the inhalation of pure oxygen. In other words, alcohol, which has a selective affinity for brain tissue, interferes with the oxidative processes in the cell, but this handicap may be to a large part overcome by the inhalation of oxygen.* There is apparently no increase in the combustion of alcohol as a result of breathing oxygen. Oxygen may assist oxidative processes through a reactivation of the enzymes concerned with tissue oxidation. Alcohol poisoning may result in part in histotoxic anoxemia, in which symptoms of oxygen-want may be produced even in the presence of a normal oxygen saturation of the arterial and venous blood. That mental disturbances might be caused by other poisons, which cause tissue anoxemia and which might be relieved by the inhalation of oxygen in the same way that alcoholism is relieved, appeared to be a tenable hypothesis.

Numerous other studies suggested the presence of oxygen deficiency in dementia præcox. Segal and Hinsie¹³ reported in a series of 14 young male dementia præcox patients who showed peripheral cyanosis that the oxygen content of the arterial blood and the oxygen arterial saturation was definitely lowered in the majority of cases. Koch and Mann¹⁴ demonstrated a deficiency in neutral sulphur by chemical examination of the brain of cases of dementia præcox and Freeman¹⁵ reported a deficiency of iron in cortical ganglion cells in dementia præcox, both quantitatively and histochemically. Both of these *catalytic* agents are involved in the utilization of oxygen by the tissue cells. The oxygen consumption as well as the metabolism of nitrogen and carbohydrates has generally been reported to be below the average and in some patients definitely subnormal (Wuth,¹⁶ Henry,¹⁷ Hoskins and Sleeper.¹⁸) Golla¹⁹ observed that a high percentage of schizophrenic and melancholic patients when tested with two per cent carbon dioxide inhalations showed a diminished excitability of the respiratory cen-

*Barach and McFarland in attempting to confirm Palthe's work found that oxygen only partially relieves the symptoms of alcoholism.

ter, a circumstance which would tend to provide a diminished supply of oxygen to the individual. This physiological fact seems to be in harmony with the observation of Kempf²⁰ who called attention to the fact that in catatonia the form of respiration is usually characterized by shallow abdominal breathing, similar to that observed in hibernating animals and also in the autohypnotic adaptation of primitive people when confronted with starvation.

The physiological basis for the attempt to treat patients with oxygen may be seen in the foregoing facts. The use of carbon dioxide was based not only on the results of Loevenhart and his co-workers but also because carbon dioxide causes a great increase in pulmonary ventilation and a pronounced fall in pH, both of which increase the tension at which oxygen is made available to the tissue cell. In addition Wolff and Lennox²¹ observed a dilatation of the cerebral arterioles as a result of the inhalation of high concentrations of carbon dioxide.

Recently, Langenstrass and Buchman²² reported a series of patients who were treated by a combination of fever therapy, carbon dioxide and oxygen inhalations and psychotherapy. Of nine patients treated by this combined method all were successfully roused from stupor at the time of the carbon dioxide inhalation. Three sank back into stupor within a half hour, two remained out of the stupor for a week, and then gradually became apathetic and mute again. Four remained out of stupor at the time of the report and also showed general mental and physical improvement to a marked degree. Three had been discharged from the institution and one was actively working and well but still in the institution.

Methods: When the research project was started a small portable Barach oxygen chamber was used. Two patients were placed in the chamber, the oxygen concentration of which was maintained between 45 and 50 per cent. The carbon dioxide concentration was elevated so that it fluctuated within a range of two to four per cent. The temperature varied between 62 and 70 degrees Fahrenheit; the humidity ranged from 40 to 50 per cent. The patients lived in the chamber, but once a day for six days of the week the patients were

taken out of the chamber, placed in an oxygen tent of the Barach type and were given inhalations of a mixture of 15 to 20 per cent carbon dioxide and 80 per cent oxygen. The concentration of carbon dioxide was raised to 5 per cent in two minutes and then was increased 5 per cent each minute until a concentration of 15 per cent and occasionally 20 per cent was obtained. The patients did not receive a concentration of 15 to 20 per cent carbon dioxide longer than one or two minutes. Following the oxygen and carbon dioxide inhalations prolonged efforts were made to engage the patients in conversation, at least one hour being devoted to this effort. Furthermore, after the patients were placed back in the oxygen chamber the attempt to establish communicability with them was continued for two or three hours more. This type of treatment extended over a period of about two and one-half months.

The first two patients to be so treated began to show improvement. They are designated as E. Ha. and M. Sc. (see Table I and the short clinical abstracts). Their improvement continued until finally a level of remission was achieved. It seemed advisable, therefore, to continue the research with other patients. A group of three dementia præcox patients of the catatonic type was given the same treatment. One of the three showed transitory periods of slight improvement, while the condition of the remaining two remained unchanged.

While this preliminary work was being conducted another patient (V. Be.) of the same diagnostic group was being given daily carbon dioxide and oxygen treatments in the Barach tent, but he did not reside in the oxygen chamber. His general clinical condition showed some improvement after this procedure.

Because of the improvements observed in some of the patients it was decided to carry out the work on a larger scale.

A dormitory was converted into an oxygen chamber so that the patients might reside in an environment which did not differ from that to which they had been accustomed. The dormitory was made leak-tight by painting the floors and ceiling with two coats of Duco paint, and by constructing a rubber-gasketed door for entrance of doctors and nurses. The ventilation was provided by a three-speed

motor-blower unit capable of delivering 1,300 cubic feet of air per minute. The unit was placed in a room adjoining the ward. The air current was passed through a tank which contained ice in large chunks to cool and dry the air, through three Protectomotor (Staynew) filters to take up the dust and bacteria in the air, and led into the room by ducts having an inside cross-sectioned area of 144 square inches. The temperature in the room was maintained between 60 and 70 degrees, Fahrenheit, the humidity between 40 and 50 per cent. Steam radiators were used in the room for raising the temperature to the desired point. The steam pipes which passed through the floor were puttied and cemented to prevent leaks from this source. A vapor-proof globe was used to cover the ceiling light. The oxygen and carbon dioxide concentration were maintained through suitably calibrated regulators by testing five times in 24 hours. The details of oxygen chamber management and the use of filtered air are described in previous articles of one of us.²³ The analyses of the oxygen and carbon dioxide contents of the arterial blood were determined by the method of Van Slyke and Neill.²⁴ The basal metabolism was measured by a Benedict-Roth apparatus.

Ten patients lived in this dormitory for two and one-half months in an atmosphere containing between 45 and 50 per cent oxygen and between 3 and 4 per cent carbon dioxide; occasionally for short periods the carbon dioxide was raised to 5 per cent. Five of the 10 patients had no other treatment. The other 5 patients were treated daily (except Sundays) with inhalations of carbon dioxide and oxygen of 10 to 15 minutes' duration. Approximately three out of four times, the carbon dioxide concentration was raised to 30 to 40 per cent for one to two minutes. One out of four times, the carbon dioxide concentration was kept between 15 and 20 per cent. The patients were spoken to for about 15 minutes during the period immediately following the carbon dioxide treatment, but to exclude the possible influence of psychotherapy no long-continued conversation was allowed. Five additional patients were treated with carbon dioxide and oxygen inhalations but without residence in an oxygen-enriched atmosphere.

CLINICAL OBSERVATIONS

Selection of patients: All of the patients were males, ranging in age from 16 to 31. None had any recognized organic "disease," directly or remotely associated with the catatonic syndrome.

An effort was made to select those patients in whom a so-called spontaneous remission would not be expected, although it was not considered advisable to include patients who had exhibited the catatonic syndrome more than 10 years. In five instances the catatonic syndrome had persisted two years or less before treatment was started; moreover, in four of the five patients the onset had been acute as well as of relatively short duration. Other patients whose onset had been acute, but whose illness had extended over a period of many years, had also experienced partial or complete remission of varying lengths of time, but no patient was treated while he was in a phase of remission. Moreover, except for the first four patients (see Table I) the catatonic syndrome had persisted as a rule for two or more years continuously before treatment was started. It might reasonably have been expected that among those patients whose duration of catatonia was two years or less a remission was possible, although remissions may also occur at a later period. Hence, in the final evaluation the possibility of a remission in the absence of oxygen and carbon dioxide therapy must be admitted among at least the first half-dozen patients. Remissions of a more or less complete character occurred in the first and third patients on the list (Table I).

The plan of treatment for the entire group was put into operation in April, 1931, and was completed in June, 1932. The condition of each patient was subsequently carefully observed. The present report represents a survey of the entire group made in January, 1933, at least six months after the last patient had finished treatment.

It would appear from what has been said that 21 patients were under one form of treatment or another. The fact is that there were 18 patients, 3 of whom participated in more than one of the

procedures. Patient, I. We., was in the first group of 6 and subsequently in the group of 10. Patient, M. St., was in two of the groups with a long interval between each procedure. A third patient, (V. Be.) though treated early in the program was again included in the group of 5 that received high carbon dioxide only.

Results: A survey of the group as a whole (18 patients) made six months after the termination of the last treatment showed that two of the 18 patients gained a complete remission. Both of these patients had been showing some improvement, though slight, before treatments were begun. Moreover, for several reasons a remission of the catatonic symptoms might reasonably have been expected, for (1) each had reached a relatively high level of adaptation before the onset of his symptoms, (2) each had experienced an acute onset, (3) the symptoms had been of relatively short duration. Two facts are known: first, that these two patients received treatment, second, that they became well. It can neither be affirmed nor denied that there was any relationship between treatment and the clinical condition.

Six months after the termination of the last treatment the clinical condition of the remaining 16 patients was essentially unchanged, as compared with their condition just before treatment was started. Only 2 of the 18 patients therefore gained a level of remission. According to the observations of others on the catatonic syndrome in dementia præcox, this number of remissions is well within the range of expectation. It was not possible to observe any clinical differences in any of the three groups, except in the two instances of remission. That is, the results after six months seemed to be independent of the nature of the treatment, whether the treatment comprised high oxygen and high carbon dioxide, or high oxygen only, or high carbon dioxide only.

The five patients who resided steadily for about two and one-half months in the oxygen chamber and who did not receive carbon dioxide treatments showed no clinical alterations while the treatment was being carried on. Transitory changes were observed,

however, among those patients who received high concentrations of carbon dioxide. The changes were directly associated with the treatments, sometimes immediately preceding the beginning of treatment, sometimes at the close of treatment. The changes comprised (1) a distinct and often overwhelming fear of death or injury, followed by vigorous resistance to the inhalation of high concentrations of carbon dioxide. When it appeared that consciousness was about to be lost, the patients protested with great fervor. (2) The strenuous objections were manifested by physical resistance, or by verbal resistance, or by both. Not infrequently the patient beseeched the physician to release him from the impending fearful experience and he promised to speak if the treatment were not given. Ordinarily, the patient spoke as if he were under duress; he was not natural and easy in his conversations and he generally responded briefly. When the entire procedure was completed, it was the rule for the patient to return to the condition that prevailed before treatment was instituted.

In several instances efforts were made to engage the patients in conversation as soon as the period of communicability appeared, which was generally after the administration of carbon dioxide. It was possible to engage the patient in a more or less strained conversation for irregular periods, ordinarily of several minutes' duration. The patients were not spontaneous but they briefly answered questions addressed to them. These efforts were repeated with other patients without any observable effects.

In conclusion, therefore, it may be stated that in 16 of the 18 patients treated by one of the three aforementioned methods no clinical changes of consequence were observed at any time following the cessation of treatment. In 2 of the 18 patients a full clinical remission was achieved, but it does not seem possible to claim any relationship between the gaseous treatment per se, and the remission. The present technique of administering carbon dioxide creates intense anxiety in the patient and leads to states of great resistance.

TABLE I. DURATION OF CATATONIA BEFORE TREATMENT, AND AGE, TYPE OF ONSET AND PREVIOUS REMISSIONS OF PATIENTS TREATED

Name	Age, years	Duration of catatonia before treatment, months	Onset	Previous remissions
E. Ha.	23	9	Acute	None
L. Di.	20	10	Subacute	None
V. Be.	23	13	Subacute	Partial
M. Sc.	23	19	Acute	None
G. Gi.	16	24	Subacute	Partial
L. Sa.	18	24	Insidious	None
N. Br.	29	24	Acute	Complete
S. Li.	25	25	Acute	Partial
M. St.	21	31	Insidious	Partial
M. Po.	31	34	Insidious	Partial
I. We.	25	36	Subacute	Complete
B. He.	29	43	Acute	Complete
F. Ba.	19	66	Subacute	Partial
E. We.	19	67	Insidious	None
M. Fe.	26	72	Insidious	None
A. Ma.	29	72	Insidious	None
W. Mc.	26	96	Acute	Partial
A. Si.	31	120	Insidious	None

TABLE II. TREATMENT AND DURATION

Duration, days		
Residence in oxygen chamber with daily treatments with high carbon dioxide:		
1.	E. Ha.	49
2.	I. We.	106
	I. We. (repeated)	87
3.	M. Sc.	75
4.	G. Gi.	88
5.	M. St.	55
6.	M. Po.	87
7.	E. We.	87
8.	M. Fe.	87
9.	L. Di.	78
Residence in oxygen dormitory only:		
10.	L. Sa.	87
11.	B. He.	79
12.	F. Ba.	87
13.	A. Ma.	87
14.	A. Si.	87
Daily treatments with high carbon dioxide only:		
15.	S. Li.	87
16.	W. Mc.	87
17.	N. Br.	87
18.	V. Be.	75
19.	M. St.	87

CLINICAL ABSTRACTS

The first nine patients referred to in the subjoined abstracts remained continuously in the oxygen chamber and also received daily inhalations of carbon dioxide.

1. I. We., age 25, single. From early boyhood until the onset of the psychosis the patient exhibited a vast amount of energy and his interests were widespread. He progressed quickly through school work, engaged actively in athletics, was fond of being with groups, but he was particularly reticent about his own personal affairs and was especially stubborn in the possession of his own ideas. Ordinarily he was placid and even-tempered. It was not known that he had ever had a love affair. He divided girls in two groups, those with whom he had sexual intercourse, and those with whom he had "platonic" relations. His range of close friendships was very small.

He first exhibited distinct personality changes when he was 17 years old, but pronounced disorders leading to hospitalization did not occur until the fall of 1928 (age 22) when he became greatly hypochondriacal, anxious, seclusive, almost mute; he refused food, exhibited many mannerisms and was unclean in habits. He remained in this state for about a year, following which time he gained a complete remission, which lasted about a month. From November, 1929, until about May, 1930, he was consistently overactive, resistive, obstinate, mute, grimaced freely and had auditory hallucinations. Upon the subsidence of this overactivity he became rigidly catatonic, with clenched fists, tightly approximated lips, and general immobility; he held himself rigid for days at a time; he was mute; he had to be clothed and fed. Treatments were begun while he was in the latter state.

He lived continuously in the oxygen chamber from September 8, 1931, until December 23, 1931 (106 days). During this period he also received daily inhalations of carbon dioxide. Carbon dioxide treatment was described by him as a form of punishment; he said he preferred to speak rather than to take the treatments. He frequently did what many of the other patients did, namely, he talked and assumed a slightly less unnatural attitude when it seemed that carbon dioxide treatment was unavoidable. He talked to prevent what he called a punishing experience. Although everything was done to make the patient feel that carbon dioxide was administered in an effort to make him feel better, the patient was always fearful, reacted with an expression of horror and used all his resources to ward off what seemed to him to be certain death. There were many occasions during which the patient, frightened at the sight of the carbon dioxide tent, pleaded that the treatment be omitted; he promised to talk and to be natural, if only he could be released from the treatment. It appeared as if the clinical value of carbon dioxide lay in its alleged threat of death, because the same type of momentary lucidity and apparent remission was obtained simply by letting the patient see that preparations were being made to administer the treatment to him, as was obtained during the administration of the gas itself. The research project in this respect assumed the nature of a conditioned reflex.

From March 15, 1932, until June 10, 1932, (87 days) the same procedures were repeated; namely, the patient resided continuously in the oxygen chamber, while he received short daily inhalations of carbon dioxide.

During the two treatment periods outlined in the foregoing there were occasional evidences of improvement. For instance, at times he spontaneously partook of food;

there were times when he followed the request of the physician, as, for example, when he cooperated in a blood pressure reading; sometimes he dressed and undressed himself. On one occasion he spoke clearly and easily for about a half hour. At the time the carbon dioxide tent or any of its associations were not in evidence.

From December 23, 1931, until March 15, 1932, he did not receive any type of treatment. Throughout this period he continued to be stuporous and showed extreme muscular rigidity. Since treatment has been discontinued, that is, since June, 1932, and up to the present writing (January, 1933), his condition has been unchanged. He has been mute, immobile, and the various muscular groups have remained remarkably tense.

2. *E. Ha.*, age 23, single. Throughout childhood he was stubborn, peevish, self-centered; he exhibited a wealth of energy and carried through to completion the tasks assigned to him; ordinarily he was reticent and reserved; he was ungracious toward those in authority. He was essentially a "home boy." Shortly after puberty the aforementioned character traits became more pronounced; he became largely asocial, but continued energetically with scholastic work, graduating from college with a degree in electrical engineering. He worked successfully until a short time before the onset of the psychosis.

The onset of his psychiatric disorder was in part at least associated with his effort to develop a love affair with a girl. It was a relatively acute onset, characterized by confusion, anxiety, ideas of reference, insomnia. He subsequently became stuporous, mute, inactive when left alone and negativistic under stimulation. He remained in the catatonic stupor for about four months before oxygen and carbon dioxide treatment was begun. Treatments were started on April 18, 1931. He protested with great vigor against the administration of carbon dioxide and it was necessary to take such measures as would prevent him from destroying the hood that was placed over his head while carbon dioxide was being given. Treatments were discontinued on June 6, 1931. He began to show some improvement during the first week in May, 1931. The improvement continued steadily and he was discharged from the hospital on November 10, 1931, as recovered.

3. *M. Sc.*, age 23, single. One sister experienced a schizophrenic catatonic syndrome from which she made a more or less complete recovery. On the maternal side of the family psychiatric disorders of a schizophrenic character were frequent.

The patient had always been scholastically minded and graduated from college with the degree, master of arts. His emotional life was largely invested in his family, in school work and in religion. He had few friends, was ordinarily quiet and secretive and sensitive with respect to the opinions of others. At the same time he was eminently narcissistic. He was given to romance and to phantasy; he was not practical. As a rule he was irritable, faultfinding and stubborn.

The onset of the psychiatric disorder was about 19 months before he received oxygen and carbon dioxide treatment. In the early part of his illness he was talkative, restless and mildly paranoid, but later he became stuporous and negativistic. From time to time he showed distinct evidences of improvement which lasted from a few hours to a couple of days. He was placed in the oxygen chamber on June 18, 1931, and remained continuously therein until September 1, 1931. During this time he also received daily inhalations of carbon dioxide. About two weeks after treatments were finished he began to show steady improvement and he was discharged from the hospital on February 6, 1932, as recovered. He remains recovered up to the present writing, January, 1933, a period of approximately a year.

46 TREATMENT OF DEMENTIA PRÆCOX BY OXYGEN ADMINISTRATION

4. *G. Gi.*, age 16, single. The father and a brother are in a state hospital, each being schizophrenic.

The patient was a quiet, seclusive "home" boy, inseparably tied to his mother, with whom he slept until he was 12 years old. He was bashful, had only a few friends, and he seldom was communicative. He was described by his teachers as "harmless, docile, weak and placid." He was particularly stubborn about having his own way.

He showed early psychiatric symptoms about two years before oxygen and carbon dioxide treatments were instituted. The early symptoms were definitely of a schizophrenic nature and were described as the excitement phase of the catatonic reaction, which persisted for approximately seven months and which was followed by a period of catatonic stupor of about seven months' duration. Following the phase of catatonic stupor he remained quiet, indifferent, untidy but engaged in some menial work under supervision; at times he had auditory hallucinations. For a period of about nine months before oxygen and carbon dioxide treatment was begun he was quiet, seclusive, worked incompletely and perfunctorily, but he did not exhibit either an excitement or a stuporous phase of catatonia.

He was placed in the oxygen chamber on March 15, 1932, and remained there until June 10, 1932, that is, he was in the chamber for about 88 days. During this time he also received inhalations of carbon dioxide.

It is now a little over seven months since treatment was ended; at no time since treatment was ended has he shown any special changes in his clinical condition.

5. *M. St.*, age 21, single. Before the onset of his psychiatric disorder he was a placid, even-tempered boy, who spent almost all of his time at his studies or with his mother. He was shy and modest, developed no friendships and showed no special "interests." He was forced into scholarship by an ever-present and ever-pressing mother.

The onset of the psychiatric disorder was not well-defined. It was obviously necessary to have him see a physician about 31 months before he received oxygen and carbon dioxide treatment. He then was in a phase of catatonic stupor, from which he subsequently made a partial recovery, but soon he had returned to the stuporous state, with mutism, intense negativism and various stereotyped actions.

From April 18, 1931, to June 18, 1931, he remained in the oxygen chamber. From June 2 to June 17, 1931, he also received inhalations of carbon dioxide. His general clinical condition was unaltered during the treatment periods, save for great resistance to the administration of carbon dioxide. Since the treatment has ended, that is, now for approximately seven months, his condition has remained continuously the same.

6. *M. Po.*, age 31, single. Prior to the onset of his psychiatric disorder the patient was quiet, aloof, asocial. His interests were largely restricted to school work and to his home. He was stubborn, selfish and sensitive. He exhibited a large and steady output of energy, although his interests were principally away from people.

The onset of the psychosis was insidious, although the acute symptoms could be more or less accurately timed as May, 1929, approximately 34 months before oxygen and carbon dioxide treatments were begun. He was occupied at times with delusions of persecution and of grandeur, but the more prominent symptomatology comprised mutism and intense negativism, from which for a short period he gained a partial remission.

From March 15, 1932, until June 10, 1932, (87 days) he lived continuously in the oxygen chamber, while during the same period he received short daily inhalations of

carbon dioxide. He offered tremendous resistance to the latter. Throughout the course of treatments his general clinical condition remained unchanged. Again September 19, 1932, until October 24, 1932, he was given short daily inhalations of carbon dioxide. Except for a transitory improvement that the patient himself agreed upon as a defense against the carbon dioxide treatments, his condition continued unchanged. Up to the time of the present writing, January, 1933, the condition of rigid catatonia persists.

7. *E. We.*, age 19, single. A quiet, seclusive "home" boy, who was described by his mother as always having been "like a girl." He was slow, deliberate and disinterested. His only consistent activity was observed in school work. He was bashful, a day-dreamer and never had any companions. What little emotions he exhibited were toward his father. "He was all for his father." But there were times when he showed antagonisms and these were ordinarily toward his mother. From the age of 4 until 16 (when his father died) he slept with his father.

The onset of the psychiatric disorder was insidious; character changes were observed at the age of 14; he became more seclusive at 16 when his father died. He complained of inability to think, insomnia and restlessness. His symptoms became progressively worse; at the age of 19 he began to attitudinize and at times developed periods of excitement during which he assaulted his mother. He showed various mannerisms; he expressed delusions of reference and of influence. His general clinical condition continued unchanged.

From March 15, 1932, until June 10, 1932, he resided continuously in the oxygen chamber. During this time he also received short daily inhalations of carbon dioxide. There were no essential changes during this period, save for the great resistance to carbon dioxide administration. Subsequent to treatment his condition has remained the same—mutism, rigidity, immobility, apathy, unkemptness.

8. *M. Fe.*, age 26, single. A quiet, reserved student, who made rapid progress in scholarship, gaining the degree, bachelor of science, and later completing about one year of medical work. He was closely attached to the members of the family. His output of energy was large and steady. He labored long over his studies and held remunerative positions outside of school hours in order to meet school expenses. At times he was irritable and stubborn. As a rule he had no companions; nor did he engage in relaxing play. During his first year of medical work he gradually became inactive and disinterested. He developed a marked antagonism to his mother; the antagonism grew more severe and, finally because of it, he was sent to a hospital.

In the hospital he was mute, resistive; he refused to eat; he soiled and wet himself. As a rule he was immobile and there was muscular rigidity.

From March 15, 1932, until June 10, 1932, he lived continuously in the oxygen chamber. During this period he also received short, daily inhalations of carbon dioxide. The catatonic stupor, with muscular rigidity, continued unchanged throughout this period, save for those periods when he protested with great vigor against the administration of carbon dioxide. Since the gaseous treatment has been discontinued, his general clinical condition has remained unchanged.

9. *L. Di.*, age 20, single. A quiet, generally uncommunicative young man, who from early youth had remained almost entirely by himself. He was distant, aloof, stubborn and sensitive. He showed a disinterest in school work and upon leaving school he continued to exhibit indifference toward the few menial tasks he undertook.

The onset of his psychiatric difficulties was subacute and occurred about ten months

48 TREATMENT OF DEMENTIA PRÆCOX BY OXYGEN ADMINISTRATION

before the beginning of oxygen and carbon dioxide treatment. In the early part of his illness he was moderately over-active, resistive, irritable, hallucinated freely and expressed delusions of reference. Subsequently he became less active, eventually developing a stuporous reaction with rigid musculature.

From September 8, 1931, until November 24, 1931, (78 days) he resided in the oxygen chamber, having been taken out only to receive daily inhalations of carbon dioxide. Throughout the period of this procedure he showed no special changes, save a violent objection to the carbon dioxide inhalations. His general condition has since remained unchanged.

The following five abstracts refer to those patients who received only oxygen treatment. Each patient lived in an oxygen chamber (50 per cent) continuously from March 15, 1932, until June 10, 1932 (87 days).

10. *L. Sa.*, age 18, single. A quiet, seclusive, gentle individual, whose interests were largely restricted to his home and studies. As a rule he was quite reticent and he generally was placid and even-tempered. He was an excellent scholar. He was not inclined to develop friendships.

The onset of his difficulties was insidious, having been characterized by intense withdrawal of interests from environmental conditions. He spoke affectionately of his mother and fought vigorously with his father. He became disturbed, excited, threatening, assaultive and finally had to be taken to a hospital. Subsequently he exhibited a number of mannerisms and became almost uncommunicative; he was exceedingly negativistic and as a rule was immobile. The general clinical condition just described had persisted for about two years before gaseous treatment was instituted.

From March 15, 1932, until June 10, 1932, he resided continuously in the oxygen chamber. Throughout this period and also subsequently (until January, 1933) his general clinical condition continued unaltered.

11. *B. He.*, age 29, single. Prior to the onset of the psychosis the patient was regarded as an able student and a good mixer with people. He enjoyed being with people and generally made himself agreeable. He engaged actively in sports and his range of interests was wide. He communicated his thoughts freely to others. As a rule he was of a cheerful nature. He had never had any love affair; indeed, almost all of his sociability with girls centered around his sisters and their associates. His principal plans in life were identified with the members of his family.

The onset of the psychiatric disorder was associated with the acquisition of gonorrhoea, when he was 23 years old. He developed ideas of reference and thought that there was a frame-up to cause him to lose his position. He had auditory hallucinations. He soon became intensely excited, assaultive and negativistic; he lay in one position for long periods and was generally mute; he refused to eat. From time to time he became cooperative, friendly and communicative, but these periods were usually of short duration.

The catatonic syndrome had persisted about 43 months before gaseous treatment was started. From March 23, 1932, until June 10, 1932, (79 days) he resided continuously in the oxygen chamber. Throughout and subsequent to this period he showed no essential clinical changes.

12. *F. Ba.*, age 19, single. Before the onset of the psychosis the patient was an active, energetic youngster, who played with groups of boys. He was usually mischievous, engaged in fisticuffs on slight provocation and was infractionous in the classroom. He took offense easily and was apt to see slights when none was intended; he was tempestuous and stubborn. He was not inclined to form intimate friendships.

The onset was subacute and took place about five and one-half years before gaseous treatment was started, that is, the onset occurred at about the age of puberty. At times he was quiet and seclusive; at other times he became quarrelsome when he thought that other boys talked disparagingly about him. Finally because he became assaultive and negativistic he was sent to a State hospital where he remained from September 21, 1927, until November 25, 1928. During the early part of State hospital residence he was mute, immobile and showed waxy flexibility. This catatonic stupor lasted about five months and was followed by a phase of catatonic excitement, which subsided in greater part within a couple of months. In November, 1928, he had gained a complete remission, was discharged from the hospital and he re-entered school. However, within a few weeks he became assaultive, threatening, infractionous in school, but when taken out of school his behavior improved. He finally secured employment and was getting along satisfactorily until June, 1931, when he again became upset and was sent to a State hospital. From June until December, 1931, he was in a phase of intense catatonic excitement, followed by catatonic stupor with waxy flexibility.

From March 15, 1932, until June 10, 1932, (87 days) he was continuously in the oxygen chamber. Throughout and subsequent to the period of treatment his clinical condition remained unaltered.

13. *A. Ma.*, age 29, single. A quiet, underactive, impractical individual, who was greatly given over to day-dreaming. He never had shown any special interests in environmental situations. He was shy, bashful and reticent, played but little and then never with anyone. He was especially sensitive to criticism; stubbornness was one of his outstanding traits. His interests were principally in the family circle. His mother died when he was 11 months old and he was brought up by a foster-mother, to whom he was strongly attached. Upon her death, when he was 18 years old, he showed distinct personality changes. He became progressively more seclusive, tried to engage in a remunerative type of work, but failed. He developed delusions of reference, became very antagonistic, claimed he was married to a girl who had married a negro and finally he became enraged, smashed furniture and said he had finally killed the negro. At times he thought he was a priest. When he was taken to a hospital he was extremely excited, destructive, delusional and hallucinated. He continued in the excitement phase for about five months, then his condition gradually improved, until it was felt that he had achieved a complete remission. He left the hospital, secured a civil service position, at which he worked for several months. Later he became restless and uneasy and soon it was advisable to have him return to the hospital. On this occasion he was dull, indifferent, held delusions of persecution and many bizarre ideas; he showed many stereotyped movements.

The duration of the psychosis (from the date of the first attack) was about six years before gaseous treatment was started. From March 15, 1932, until June 10, 1932, (87 days) he resided continuously in the oxygen chamber. Throughout and subsequent to this period there were no clinical changes of consequence.

14. *A. Si.*, age 31, single. A bashful, shy, retiring individual whose interests were preponderantly in matters of scholarship, but who also in early youth participated in

athletics. When he came into puberty he restricted his interests mainly to school work, more particularly to abstruse topics. He felt that he did not care for worldly affairs. He read profusely on philosophical topics. He was remarkably stubborn about having his own way. He continued his interests in scholarship until he was 19 years old, having made some preparation for studying medicine. However, he became dissatisfied with the sciences and changed abruptly to art and literature. But he would not undertake any formal studies. He retired to his room at home where he remained for unduly long periods, reading and writing. At the age of 17 he showed distinct personality changes, in that he became resentful, disobedient and insolent. He remained practically in his own room for about two years. Gradually his interests grew less and less until he did little but remain in his room. Eventually, because of his extreme indifference he was sent to a hospital. In the hospital he was idle, gazed into space for long periods, while at other times he wrote rapidly on a variety of bizarre topics, showing stereotypy to a marked degree.

From March 15, 1932, until June 10, 1932, he was in the oxygen chamber. His general clinical condition did not change at all while he was receiving oxygen treatment, nor have there been any changes up to the present time (January, 1933).

The following five abstracts refer to those patients who received only carbon dioxide inhalations (from 10 to 25 per cent carbon dioxide as a rule). These patients did not reside in a high oxygen atmosphere. Their daily activities continued as they had been before a course of carbon dioxide inhalations had begun.

15. *S. Li.*, age 25, single. Before the onset of the psychosis the patient was quiet, seclusive and restricted his interests mainly to the members of the family. He seldom engaged in play and was shy and retiring in the presence of others. He showed no special initiative and when he left school at the age of 15 he secured menial work as an operator on fur pieces.

The onset of the psychiatric disorder was acute, having occurred when his father died. The patient was then 22 years old. He became anxious and agitated, said a boy friend was calling him and he walked about the house imagining that he was shaking hands with the boy friend. He claimed he could cure cancer, of which his father had died. He quarreled intensely with his brother and mother and when he assaulted his mother he was taken to a hospital. He expressed delusions of reference and auditory hallucinations. Subsequently he became almost mute, indifferent; he grimaced freely and engaged in stereotyped movements. The general clinical condition referred to in the foregoing remained essentially unchanged up to the time that he received carbon dioxide inhalations.

From March 15, 1932, until June 10, 1932, (87 days) he received daily inhalations of carbon dioxide. For two or three minutes the inspired air contained 20 to 25 per cent carbon dioxide, while for the next 15 minutes the percentage ranged from 10 to 15 per cent. His attitude toward the treatment was unusual, in that he offered no resistance whatever. When treatment was finished he said his head felt lighter and clearer, but the improvement, if any, was a few minutes in duration. During the entire course of treatment, as well as subsequently, his condition has remained essentially unaltered.

16. *W. Mc.*, age 26, single. An over-fond mother described him as "a perfect boy"

and the father referred to him as "an ideal person." Indeed, not much information beyond the expressions just recorded was available from the parents. He was said to have been an alert student. He graduated from the grade school system at the age of 13. It is known that he was poorly adjusted to a menial position for some time after he left school. At any rate the parents granted that he became sick when he was 18 years old. "He became quiet and seclusive, would not talk; he seemed simple and childish." He showed fits of irritability. When he finally was received in a hospital he was described as negativistic, usually indifferent to his surroundings; he held constrained attitudes for long periods, grimaced freely and did not take care of his personal needs. At times he was assaultive. He expressed auditory hallucinations. This general condition continued unchanged up to the time that he received inhalations of carbon dioxide.

From March 15, 1932, until June 10, 1932, he received daily inhalations of carbon dioxide. He received concentrations of 20 to 25 per cent for a few minutes and later doses of 10 to 15 per cent for about 15 minutes. He protested vigorously against the treatments. During the course of treatment and subsequent thereto his general clinical condition remained unchanged.

17. *N. Br.*, age 29, single. A quiet, methodical, industrious individual, who kept largely to his work. He was friendly and amiable, kind-hearted and trustful. As a rule he had a very restricted range of close friendships.

The onset of the disorder was precipitated by an attempted "love" affair which was terminated when the girl married another man. For about a month following the disappointment in "love" he was depressed and "felt stiff all over." In addition to delusions of persecution he was assaultive, agitated and fearful. Subsequently he became mute and showed marked waxy flexibility. At other times he exhibited negativistic tendencies. The catatonic syndrome lasted about eight months and was followed by a complete remission, during which he returned to work well at his former position. The phase of remission lasted about eight years, having been interrupted by a catatonic phase of about three months' duration. The third attack, that is, the attack during which he was treated with carbon dioxide inhalations, began about two years before the gaseous treatments were started. The general symptoms were essentially those of the preceding two attacks, although at the time of treatment the symptoms were less marked.

From March 15, 1932, until June 10, 1932, (87 days) he was given daily inhalations of carbon dioxide. Usually he received from 20 to 25 per cent of carbon dioxide for a three-minute interval, followed by 10 to 15 per cent for about 15 minutes. He energetically protested against each treatment. During the total treatment period and subsequent thereto his general clinical condition has remained unaltered.

18. *V. Be.*, age 23, single. An "ideal" type of boy from the mother's standpoint—gentlemanly, a good scholar, popular among the boy scouts and in the church choir. It appears that he extended his interests in other socialized forms of activities—athletics, dancing—but these interests were meagre. He was decidedly devoted to his mother. He progressed well through school, having quit voluntarily just before graduation time in high school.

The onset of his disorder was subacute and was early characterized by emotional instability. He often dressed in women's clothes. He subsequently developed ideas of reference. He was quiet, seclusive, grimaced freely and held constrained postures. At times he was mute. The onset of his condition took place about 13 months before gaseous treatment was instituted. His condition had shown some improvement for months

before treatment. The improvement had been gained quickly and had been stationary for months before treatment.

From June 18, 1931, until August 31, 1931, (75 days) he received daily inhalations of carbon dioxide, against which he fought with much vigor, claiming, as many others did, that he feared being choked to death. Following the 75 days of carbon dioxide inhalations (several minutes a day) his condition improved in that he occupied himself steadily at a menial task and took good care of his personal needs. When he left the hospital in November, 1932, his condition was described as improved, although the improvement was slight.

19. *M. St.* This patient is the one described as number five. He was first subjected to inhalations of oxygen and carbon dioxide from April 18 until June 18, 1931. He showed no changes as a consequence of such treatment and nine months after the termination of the above course of therapy he began a course of carbon dioxide inhalations only. The latter extended from March 15 until June 10, 1932, (87 days). No essential changes were observed at any time during or subsequent to the two courses just outlined.

DISCUSSION OF LABORATORY OBSERVATIONS

The results of the analysis of the gas content of the blood are recorded in Table III. Of 15 observations before treatment, the arterial oxygen content and oxygen saturation were within the normal range in 13. In two cases, there was a very slight decrease from the theoretically low normal level of the arterial oxygen saturation, i. e., 95 per cent. In one case, the arterial oxygen saturation was 93.2 per cent, in the other 93.7 per cent, observations which verge too closely upon the normal to be considered significant. The earlier studies of Segal and Hinsie who reported the presence of definite oxygen unsaturation of the arterial blood in patients with dementia præcox are thus not confirmed by our observations. Even in the presence of considerable peripheral cyanosis, the arterial oxygen saturation was found to be normal. The cyanosis that these patients so frequently exhibit must, therefore, be explained not as of anoxic (arterial) origin but as a variety of stagnant anoxemia. Since the circulation of patients with dementia præcox is not insufficient in so far as total blood flow is concerned, the cyanosis of the extremities indicates a retarded blood flow through these tissues. There is no evidence that the supply of oxygen to the tissues from the arterial blood is impaired.

The effect of the inhalation of 50 per cent oxygen on the arterial oxygen saturation is not dissimilar to its effect on normal individuals. There is generally an increase to a saturation of nearly 100

per cent. Variations in the method account for slight deviations from this finding. In addition, the oxygen in physical solution is probably increased proportionally to the increase in pressure of the oxygen in the alveolar air. From both these sources there is an increase in the tension at which oxygen is made available to the tissue cell. In the normal individual at rest, increased concentrations of oxygen in the air breathed effects a slight slowing in the pulse rate. In the case of the patient who suffers from respiratory or cardiac anoxemia, more striking changes are observed. One of the effects noted recently by Barach and Richards²⁵ of long-continued oxygen inhalation on patients with cardiac failure, even in the presence of only slight arterial anoxemia, was a striking elevation of the carbon dioxide content of the blood. The elevation of carbon dioxide was an approximate index of the previous oxygen-want.

The arterial carbon dioxide content was within the normal range in all the patients studied, and in general was not elevated in any significant manner by long-continued residence in atmospheres containing 50 per cent oxygen.

In Table IV the data on the effect of oxygen administration on the blood count are recorded. In the patients who were treated simply with oxygen there was generally a decrease in circulating hemoglobin of 10 to 15 per cent. Campbell²⁶ and Barach²⁷ have observed a similar response in normal animals. In patients with anoxemia even more striking decreases in hemoglobin percentage have been observed as a result of the relief of anoxemia. In two cases of polycythemia vera treated by residence in 50 per cent oxygen for two weeks by Barach and McAlpin,²⁸ no significant decrease in hemoglobin was noted, which the authors interpreted as evidence that oxygen-want was not a factor in the disease. The degree of decrease in the dementia præcox patients varied but was not consistently large enough to warrant the opinion that it was more than might occur to normal individuals so treated. It is of considerable interest that those patients who were additionally treated with daily inhalation of high concentrations of carbon dioxide did not, except in one instance, show this response. Whether the inhalation of carbon dioxide provided an anoxemic stimulus which counteracted the effect of the oxygen, or whether the carbon dioxide ex-

erted its effect by drawing red blood cells from the blood depots, or tended toward blood concentration, is unexplained by the data which we obtained. No other influence on the blood count was observed.

The blood chemical studies recorded in Table V showed no effect of long-continued oxygen inhalation on the urea nitrogen, the uric acid or the blood sugar content of venous blood. The basal metabolism determinations (Table VI) varied inconsistently during the control and oxygen periods, so that no conclusion can be made concerning the effect of oxygen inhalation on this function.

The mechanism of the effect of the inhalation of high concentrations of carbon dioxide and oxygen in producing periods of communicability is not revealed by our studies. The observations of d'Elseaux and Solomon²⁹ do not reveal that it is simply an effect that might be produced by equally severe stimuli of other kinds. Other measures which they employed did cause varying degrees of response but not the same type of communicability produced by the inhalation of high carbon dioxide mixtures.

PSYCHOLOGICAL STUDY

The psychological part of this investigation was carried out for the following reasons: First, to obtain additional data as to the degree of cooperativeness of the patients, as well as their reactions in a series of psychological tests, previous to the oxygen and carbon dioxide treatments. Secondly, to get an objective estimation of the degree of improvement in the patients at various intervals during the treatments, as well as at the end. Thirdly, to compare, if possible, the relative changes of the three groups, i. e., Group I, those outside the chamber who received only the high carbon dioxide treatments; Group II, those inside the chamber who breathed 45 to 50 per cent oxygen and 2 to 4 per cent carbon dioxide continually; and Group III, those inside the chamber who received, in addition to the 50 per cent oxygen and 3 per cent carbon dioxide, breathing treatments of 15 to 40 per cent carbon dioxide and 60 to 85 per cent oxygen. Fourthly, to obtain additional information concerning the role of a possible oxygen deficiency in their condition by observing their behavior in the psychological tests, as well as their

physiological responses, especially pulse, blood pressure and respiration, under low oxygen, i. e., 10.5 per cent oxygen (corresponding roughly to 20,000 feet altitude).

The psychological tests were given in a Barach portable oxygen chamber in a room adjoining the larger one described in the foregoing. Each subject was tested individually in the chamber under the following conditions at the intervals indicated. First, there was a practice period in normal atmosphere, and then scores were recorded for the first control. Second, an experimental series in low oxygen (10.5 per cent). Both were given before the patients were submitted to the gas treatments. The third test was given in 50 per cent oxygen and 3 per cent carbon dioxide 5 weeks later, and the fourth, a control series in air, 12 weeks later, i. e., at the termination of the treatments.

During each experimental period the following physiological and psychological tests were given. Approximately 10 minutes after the patient had been placed in the chamber, the respiration, pulse and blood pressure were recorded, and again at the end of the experimental period, one hour and a half later. The psychological tests, administered in the order named, were as follows: (1) choice reaction, (2) mirror drawing, (3) code transliteration, (4) two tests of neuromuscular coordination, and (5) tests for common sense, opposites, disarranged sentences, number completions and synonyms from the army alpha test.

In the choice reaction test, the patient was instructed to react as quickly as possible by pressing the key corresponding to one of the five colored lights above the key. The time of reaction was recorded in hundredths of seconds. The mirror drawing test involved tracing the outline of a star as quickly and as accurately as possible while looking into a mirror. In the code test the patient was to transliterate as quickly as possible a series of letters of the alphabet from a key. The neuromuscular coordination tests involved making as many contacts as possible with a stylus in three different holes on an electric tapping board and by tracing with a stylus between two rulers which came closer and closer together. All of the contacts were recorded automatically on an electric counter. In the code and army alpha, different forms were used so that there was no opportunity for learning.

TABLE III. OXYGEN AND CARBON DIOXIDE CONTENTS OF ARTERIAL BLOOD IN PATIENTS WITH DEMENTIA PRÆCOX

Patient	Date	Relation to treatment	Arterial oxygen content volume, per cent	Oxygen capacity volume, per cent	Arterial oxygen saturation, per cent	Arterial CO ₂ content volume, per cent	Remarks
F. Ba.	3/2/32	Before treatment During period of treatment	19.3 18.6	20.2 18.4	98 100+	52.7 53.6	Oxygen only from 3/15/32 to 6/10/32
B. He.	3/1/32 5/10/32	Before treatment During period of treatment	23.5 23.0	23.0 22.8	100+ 100+	48.9 49.1	Oxygen only from 3/15/32 to 6/10/32
A. Ma.	3/11/32 4/14/32	Before treatment During period of treatment	18.7 17.6	19.5 17.6	95.9 100	51.5 51.6	Oxygen only from 3/15/32 to 6/10/32
L. Sa.	2/23/32 5/6/32	Before treatment During period of treatment	18.3 18.4	18.7 19.2	97.9 95.8	46.7 59.2	Oxygen only from 3/15/32 to 6/10/32
A. Si.	3/8/32	Before treatment	21.2	21.3	99.5	43.6	Oxygen only from 3/15/32 to 6/10/32
M. Fe	2/24/32 4/27/32	Before treatment During period of treatment	15.8 17.2	17.0 17.4	95.8 98.9	52.3 52.5	CO ₂ and oxygen from 3/15/32 to 6/10/32
G. Gi.	3/9/32 5/13/32	Before treatment During period of treatment	20.4 19.0	21.9 19.0	93.2 100	48.2 54.1	CO ₂ and oxygen from 3/15/32 to 6/10/32
M. Po.	3/16/32 5/4/32	During period of treatment During period of treatment	21.2 18.7	21.4 18.5	99.1 100+	46.8 48.3	CO ₂ and oxygen from 3/15/32 to 6/10/32
E. We.	3/4/32 4/26/32	Before treatment During period of treatment	19.2 18.7	20.2 18.9	95.0 98.9	51.9 54.4	CO ₂ and oxygen from 3/15/32 to 6/10/32

TABLE III. OXYGEN AND CARBON DIOXIDE CONTENTS OF ARTERIAL BLOOD IN PATIENTS WITH DEMENTIA PRÆCOX—(Concluded)

Patient	Date	Relation to treatment	Arterial oxygen content volume, per cent	Oxygen capacity volume, per cent	Arterial oxygen saturation, per cent	Arterial CO ₂ content volume, per cent	Remarks
I. We.	9/5/31	Before treatment	16.4	17.5	93.7	53.1	CO ₂ and oxygen from 9/8/31 to 12/23/31 1st experiment
	9/9/31	During period of treatment	17.7	18.3	96.7	56.8*	
	9/14/31	During period of treatment	16.7	17.5	95.4	59.6*	
	9/25/31	During period of treatment	17.3	18.2	95.1	..	
	9/30/31	During period of treatment	18.4	18.4	100.0	..	
	10/13/31	During period of treatment	17.3	17.9	96.6	49.7	
I. We.	11/13/31	During period of treatment	16.5	16.1	100+	58.0	CO ₂ and oxygen from 3/15/32 to 6/10/32 2nd experiment
	1/22/32	Before treatment	16.4	16.6	98.8	51.6	
N. Br.	4/19/32	During period of treatment	18.0	17.7	100+	56.7	CO ₂ treatment daily from 3/15/32 to 6/10/32
	2/25/32	Before treatment	19.0	18.9	100+	53.1	
S. Li.	4/29/32	During period of treatment	19.6	20.3	96.6	54.0	CO ₂ treatment daily from 3/15/32 to 6/10/32
	2/26/32	Before treatment	17.1	17.2	99.4	56.5	
W. Mc.	4/15/32	During period of treatment (2 min. after CO ₂ treatment)	18.3	18.6	98.4	54.7	CO ₂ treatment daily from 3/15/32 to 6/10/32
	3/3/32	Before treatment	20.0	20.5	97.6	48.3	
M. St.	4/20/32	During period of treatment	20.9	21.6	96.8	49.6	CO ₂ treatment daily from 3/15/32 to 6/10/32
	4/29/32	During period of treatment	22.3	22.2	100	50.8	
V. Be.	5/4/32	During period of treatment	21.3	21.0	100+	46.5	CO ₂ treatment daily from 3/15/32 to 6/10/32

*Carbon dioxide capacity—volume per cent

TABLE IV. BLOOD COUNTS IN RELATION TO TREATMENTS ADMINISTERED

Patient	Date	Relation to treatment	R.B.C.	Hemo- globin, per cent	W.B.C.	Polys, per cent	Retic.	Remarks
F. Ba.	3/4/32	Before treatment	5,780,000	94	9,000	68	.8	Oxygen only from 3/15/32 to 6/10/32 7 determinations made
	5/11/32	During period of treatment	4,560,000	84	11,000	72	.5	
B. He.	3/18/32	Before treatment	5,360,000	104	7,500	55	.3	Oxygen only from 3/23/32 to 6/10/32 6 determinations made
	4/14/32	During period of treatment	4,720,000	85	8,000	64	.3	
	5/18/32	During period of treatment	4,240,000	97	10,000	69	.3	
A. Ma.	3/8/32	Before treatment	5,160,000	95	9,500	63	.05	Oxygen only from 3/15/32 to 6/10/32 7 determinations made
	5/11/32	During period of treatment	4,120,000	97	6,000	62	.5	
L. Sa.	3/8/32	Before treatment	4,560,000	90	15,500	77	.4	Oxygen only from 3/15/32 to 6/10/32 7 determinations made
	5/13/32	During period of treatment	4,520,000	82	14,500	66	.4	
A. Si.	3/7/32	Before treatment	5,320,000	106	19,000	76	.5	Oxygen only from 3/15/32 to 6/10/32 7 determinations made
	5/13/32	During period of treatment	4,400,000	87	15,000	63	.5	
M. Fe.	3/4/32	Before treatment	4,180,000	75	8,500	83	.9	Oxygen plus CO2 from 3/15/32 to 6/10/32 4 determinations made
	3/18/32	During period of treatment	4,200,000	80	10,000	76	.4	
G. Gi.	3/4/32	Before treatment	4,940,000	96	6,000	48	.2	Oxygen plus CO2 from 3/15/32 to 6/10/32 7 determinations made
	5/18/32	During period of treatment	4,200,000	78	10,000	69	.3	
M. Po.	3/4/32	Before treatment	5,140,000	90	9,500	60	.1	Oxygen plus CO2 from 3/15/32 to 6/10/32 7 determinations made
	4/13/32	During period of treatment	4,280,000	76	8,000	68	.2	
	5/13/32	During period of treatment	5,340,000	90	11,500	75	.4	
I. We.	9/3/31	Before treatment	4,280,000	76	3,750	59	.8	Oxygen plus CO2 from 9/9/31 to 12/23/31 1st experiment, 16 determinations made Oxygen plus CO2 from 3/21/32 to 6/10/32 2nd experiment, 7 determinations made
	12/10/31	During period of treatment	4,840,000	88	5,250	62	.6	
	3/8/32	Before treatment	5,200,000	95	6,500	68	.2	
	4/19/32	During period of treatment	4,200,000	84	7,000	64	.1	
N. Br.	10/15/30	Before treatment	4,260,000	78	5,250	57	..	Oxygen plus CO2 from 6/27/31 to 9/4/31 5 determinations made
	8/18/31	During period of treatment	5,560,000	98	..	..	..
	9/13/32	During period of treatment	5,200,000	100	7,000	63	..	
M. Sc.	6/6/31	Before treatment	4,910,000	955	Oxygen plus CO2 from 6/18/31 to 9/1/31 18 determinations made
	8/18/32	During period of treatment	5,540,000	104	..	..	.9
M. St.	8/18/30	Before treatment	4,580,000	80	6,200	77	..	Oxygen plus CO2 from 4/18/31 to 6/18/31
	6/16/31	During period of treatment	5,540,000	98	..	..	1.5
	8/10/31	After treatment	6,050,000	105	..	..	.9

TABLE V. BLOOD CHEMICAL DETERMINATIONS

Patient	Date	Relation to treatment	Urea nitrogen mg./100 c.c.	Uric acid mg./100 c.c.	Sugar mg./100 c.c.	Remarks
F. Ba.	3/4/32	Before treatment	10.3	3.0	83.3	Oxygen only from 3/14/32 to 6/10/32 9 determinations made
	5/11/32	During period of treatment	10.9	2.8	94.3	
B. He.	3/18/32	Before treatment	11.6	3.1	95.2	Oxygen only from 3/15/32 to 6/10/32 10 determinations made
	4/14/32	During period of treatment	10.8	3.2	88.7	
	5/25/32	During period of treatment	14.6	2.8	96.8	
A. Ma.	3/2/32	Before treatment	9.5	2.7	100.6	Oxygen only from 3/15/32 to 6/10/32 11 determinations made
	5/11/32	During period of treatment	10.5	3.0	95.5	
L. Sa.	3/8/32	Before treatment	11.5	3.2	97.0	Oxygen only from 3/15/32 to 6/10/32 10 determinations made
	5/13/32	During period of treatment	12.9		94.3	
A. Si.	3/7/32	Before treatment	11.4	3.4	86.7	Oxygen only from 3/15/32 to 6/10/32 13 determinations made
	5/13/32	During period of treatment	13.2	3.5	91.5	
M. Fe.	3/4/32	Before treatment	13.5	3.0	84.3	Oxygen only from 3/15/32 to 6/10/32 12 determinations made
	3/18/32	During period of treatment	11.1	3.0	103.4	
G. Gi.	3/4/32	Before treatment	10.7	3.2	88.2	Oxygen only from 3/15/32 to 6/10/32 11 determinations made
	5/25/32	During period of treatment	10.3	2.6	91.9	
M. Po.	3/4/32	Before treatment	11.4	3.0	99.3	Oxygen plus CO ₂ from 3/15/32 to 6/10/32 13 determinations made
	4/13/32	During period of treatment	12.5	2.7	102.7	
	5/13/32	During period of treatment	11.3	2.5	96.1	
E. We.	3/7/32	Before treatment	13.2	2.6	88.2	Oxygen plus CO ₂ from 3/15/32 to 6/10/32 10 determinations made
	4/28/32	During period of treatment	10.0	3.2	110.3	
	5/18/32	During period of treatment	10.3	3.5	100.0	
I. We.	9/3/31	Before treatment	12.2	.528*		Oxygen plus CO ₂ from 9/9/31 to 12/23/31 21 determinations made
	12/10/31	During period of treatment	12.2	.495*	90.4	
I. We.	3/7/32	Before treatment	11.6	3.0	87.2	Oxygen plus CO ₂ from 3/21/32 to 6/10/32 10 determinations made
		During period of treatment	11.2	3.2	103.4	

*Chlorides.

TABLE VI. BASAL METABOLISM IN RELATION TO TREATMENT

Patient	Date	Relation to treatment	B. M. R., per cent	Remarks
F. Ba.	3/8/32	Before treatment	- 8	Oxygen only from 3/15/32 to 6/10/32
	4/5/32	During period of treatment	- 6	
	6/13/32	After treatment	+13 + 9 + 1	4 determinations made
B. He.	3/1/32	Before treatment	- 5	Oxygen only from 3/15/32 to 6/10/32
	6/16/32	After treatment	-21 -36	3 determinations made
A. Ma.	3/8/32	Before treatment	- 8	Oxygen only from 3/15/32 to 6/10/32
	4/1/32	During period of treatment	+ 6	
	5/13/32	During period of treatment	- 5	
	6/17/32	After treatment	+14 + 7 + 2 - 2	4 determinations made
L. Sa.	3/3/32	Before treatment	-14 -19	Oxygen only from 3/15/32 to 6/10/32
			1 determination made	
A. Si.	3/8/32	Before treatment	- 1	Oxygen only from 3/15/32 to 6/10/32
	3/21/32	During period of treatment	+ 1	
	6/13/32	After treatment	- 5 - 6	4 determinations made
G. Gi.	2/27/32	Before treatment	+27	Oxygen plus CO ₂ from 3/15/32 to 6/10/32
	4/5/32	During period of treatment	+13	
	6/13/32	After treatment	+13 0 - 5	4 determinations made
E. We.	3/11/32	Before treatment	- 6	Oxygen plus CO ₂ from 3/15/32 to 6/10/32
	5/7/32	During period of treatment	- 4 +20	
	5/21/32	During period of treatment	+21 +12	4 determinations made

TABLE VI. BASAL METABOLISM IN RELATION TO TREATMENT—(Concluded)

Patient	Date	Relation to treatment	B. M. R. per cent	Remarks
M. St.*	5/14/31	During period of treatment	0	Oxygen plus CO ₂ from 4/18/32 to 6/18/31
	7/11/31	After treatment	+ 1 — 3 — 8	1st experiment, 4 determinations made
M. St.	4/9/32	During period of treatment	—18	CO ₂ treatment daily from 3/15/32 to 6/10/32
	6/23/32	After treatment	—14 —15	2nd experiment, 2 demonstrations made
N. Br.	4/8/32	During period of treatment	+ 9	CO ₂ treatment daily from 3/15/32 to 6/10/32
	6/18/32	After treatment	+ 4 — 5 — 8	2 determinations made
S. Li.	2/27/32	Before treatment	— 8	CO ₂ treatment daily from 3/15/32 to 6/10/32
	4/9/32	During period of treatment	+ 1 +15 +11	3 determinations made
W. Mc.	6/18/32	After treatment	+ 4 + 5	CO ₂ treatment daily from 3/15/32 to 6/10/32
	6/23/32	After treatment	— 2	1 determination only
V. Be.	4/8/31	Before treatment	—29	CO ₂ treatment daily from 6/18/31 to 8/31/31
	10/5/31	After treatment	—24 + 4 — 5	1st experiment, 2 determinations made
	4/8/32	Before treatment	— 3	CO ₂ treatment daily from 3/15/32 to 6/10/32
	6/18/32	After treatment	0 — 4	2nd experiment, 2 determinations made

*M. St. was a patient in 1st and 2nd experiments—in first he received oxygen and CO₂ in 2nd he received CO₂ only.

In the practice series an attempt was made to establish the best possible record in each performance before any scores were recorded for the first control. This involved a great deal of time and patience in getting the patients to cooperate and in getting them accustomed to the experimental situation. Some of the tests were difficult and in a few cases impossible, especially for the patients in the more advanced catatonic states. Great care was taken to get as much as possible from each patient. Throughout the series the tests were given in the same order and with the same amount of encouragement regardless of the quality of the response. Practically all of the patients could do the simplest test, the choice reaction, as indicated in the table below, and also the coordination ones, but 6 of them never succeeded in doing the mirror drawing, code and army alpha. The average reaction times with the standard deviations are recorded in the table below. The data from this test will be analyzed more in detail, since the performance was more uniform than in any of the other tests. Upon examination of the data in Table VII, one finds that in the patients of Group I (those outside the chamber) 2 (N. Br. and M. St.) made a faster average reaction time in the final control as compared to the reaction times made in the first control series, i. e., the standard deviations were lower and the differences were statistically significant when treated by the D/S.D. Of the 3 other patients in Group I, 2 (V. Be., and W. Mc.) remained the same, and one (S. Li.) was considerably slower. Of the second group (Group II, inside chamber—50 per cent oxygen and 3 per cent carbon dioxide), 3 were faster at the end of the experiment (F. Ba., L. Sa., and A. Si.), and 2 were slower (B. He., and A. Ma.). None of these changes was significant with the exception of F. Ba., especially at 50 per cent oxygen. In Group III (50 per cent oxygen and 3 per cent carbon dioxide with additional high carbon dioxide breathing treatments) there were no significant changes. At the end of the experiment, 2 patients (M. Po., and I. We.) reacted to the test, but this change was probably due to increased cooperation and encouragement than to any significant improvement in their behavior.

TABLE VII. CHOICE REACTION TEST

This table shows the average choice reactions time in seconds with the standard deviations for each patient in the various gas mixtures as indicated. The first control and low oxygen tests were given before the treatments began, the 50 per cent oxygen five weeks later, and the final control at the end of the experiment twelve weeks later.

Patient	Control air		10.5% Oxygen		50% Oxygen		Control air	
	Time, average	S. D.	Time, average	S. D.	Time, average	S. D.	Time, average	S. D.
V. Be.	72.2	5.5	72.2	7.9	65.4	6.2	72.1	6.5
N. Br.	78.0	10.1	78.5	19.5	70.2	8.2	67.9	8.2
S. Li.	128.9	31.2	167.4	49.9	151.1	25.2	147.3	34.7
W. Mc.	61.3	13.9	95.2	25.0	60.3	15.7	62.7	9.9
M. St.	102.5	40.2	74.9	9.4	88.2	37.3	84.0	22.6
F. Ba.	69.1	6.9	117.8	33.9	59.3	5.6	65.0	10.2
M. He.	78.6	7.8	77.6	13.5	124.6	13.8	80.3	9.5
A. Ma.	85.2	7.9	165.0	42.0	107.4	14.3	96.3	13.3
L. Sa.	150.0	32.7	185.2	38.6	175.2	44.2	141.4	31.1
A. Si.	75.1	9.0	91.0	18.0	71.8	5.8	71.5	8.0
M. Fe.								
G. Gi.	63.0	5.8	119.8	70.9	100.6	25.8	66.3	10.8
M. Po.							95.0	43.6
E. We.	207.0	129.0	871.6	434.2			128.3	138.0
I. We.							427.4	230.5

In comparing the first and final control series in the choice reaction test with the scores in low oxygen, 8 of the 12 patients who responded were greatly impaired as to time and errors. When these differences were treated by the formula $D/S.D.$, all but one were significant, i. e., 3 or above. The increased standard deviations also shows that the performance was considerably affected. Of the remaining 4 patients, 2 (V. Be., and N. Br.) were not affected, and 2 (M. St., and B. He.) were even faster.

TABLE VIII. PSYCHOLOGICAL TESTS

This table shows the average score for each patient in the mirror drawing, coordination, code and army alpha tests in the gas mixtures as indicated. The first control and 10.5 per cent oxygen series were given before the treatments started, the 50 per cent oxygen series five weeks later, and the final control twelve weeks later. If no scores are given the patient made no reaction to the tests.

Subject	Control air					10.5% Oxygen				
	Mirror drawing, score	Coordination Ruler score	3-Hole score	Code, time	Army alpha, score	Mirror drawing, score	Coordination Ruler score	3-Hole score	Code, time	Army alpha, score
V. Be.	83	11.0	82.0	172	51	70	4.3	64.3	222	48
N. Br.	91	8.5	64.0	200	42	67	4.2	49.5	401	25
S. Li.	62	4.0	45.3	1080	4	122	5.3	35.0	1500	
W. Mc.		2.0	70.0		11		4.1	66.3		
M. St.			54.0					49.0		
F. Ba.		4.3	50.0					36.6		
B. He.	82	8.6	60.0	208	49		7.0	47.6	221	45
A. Ma.	81	3.0	33.0							
L. Sa.	54		40.0				3.0	14.0		
A. Si.	78	8.2	74.0	173	62		3.5	55.0	187	43
M. Fe.										
G. Gl.		2.5	40.0		11		3.5	30.0		3
M. Po.										
E. We.										
I. We.										

In Table VIII the individual scores in the mirror drawing, code, coordination and army alpha tests have been recorded. Of the 8 patients who cooperated in the mirror drawing test, 3 in Group I (V. Be., N. Br., and S. Li.) and 2 in Group II (F. Ba., and A. Si.) improved their scores significantly in the final control as compared

TABLE VIII. PSYCHOLOGICAL TESTS—(Concluded)

This table shows the average score for each patient in the mirror drawing, coordination, code and army alpha tests in the gas mixtures as indicated. The first control and 10.5 per cent oxygen series were given before the treatments started, the 50 per cent oxygen series five weeks later, and the final control twelve weeks later. If no scores are given the patient made no reaction to the tests.

50% Oxygen					Control air				
Mirror drawing, score	Coordination Ruler score	3-Hole score	Code, time	Army alpha, score	Mirror drawing, score	Coordination Ruler score	3-Hole score	Code, time	Army alpha, score
48	11.1	96.6	143	68	52	9.5	96.3	137	64
81	6.0	71.6	192	55	70	10.0	63.0	204	67
66	8.9	52.6	515	17	67	2.0	45.6	605	8
		72.5		2			81.0	307	
		62.2					57.3		
309	9.0	58.6	569	21	241	4.1	66.1	387	46
65	4.7	53.0	263	57	129	2.0	63.8	186	52
86	4.2	35.3	288		107	1.8	39.3	305	
50	9.1	38.3			49	6.5	44.5		
93	7.5	69.3	159	73	56	4.3	79.6	169	44
	6.2	50.0		7		3.7	60.5	644	8

to the first; 1 in Group II (L. Sa.) remained approximately the same, and 2 in Group II (B. He., and A. Ma.) were much worse. In comparing the results in the control tests with the low oxygen series, all of the subjects were impaired in their responses with the exception of N. Be., N. Br., and B. He., who were better as in the

choice reaction test. In the coordination tests the results were practically the same, with the exception of the low oxygen series where every subject was worse. In the code and army alpha tests in Group I, V. Be., N. Br., and S. Li., improved, and in Group II, F. A., but otherwise there were no significant changes. In the low oxygen tests, the scores for every patient were considerably impaired. It should be noted that there is a fair degree of consistency in the data. For example, in the case of F. Ba., the improvement is apparent in all of the tests, and in the case of B. He., and A. Ma., there was a consistent downward trend in their scores in all of the tests.

In Table IX the respiration, pulse and blood pressure have been recorded for each subject taken at the beginning and at the end of each experimental period. The range for most of the patients is fairly well within the normal limits with a number of exceptions, notably at 10.5 per cent oxygen. Schneider found that in testing a large number of pilots in low oxygen during the war if the patients did not respond at all or by too violent changes, i. e., a very sudden fall in systolic or diastolic, or the reverse, the adjustment was frequently indicative of physiological unfitness, such as neuro-circulative failure or accentuated fatigue. Upon examination of Table VIII, one can observe that the responses of A. Ma., and L. Sa., for example at 10.5 per cent oxygen, are outside the normal range. In both cases there was no increase in pulse and a sudden and uncontrolled fall in systolic and diastolic blood pressure. This is further substantiated by the fact that A. Ma., developed marked tremors and convulsive movements and had to be removed from the chamber, and L. A. collapsed shortly after entering the chamber. S. Li., and F. Ba., reacted in somewhat the same manner; W. Mc., and A. Si., became unusually active, while M. Fe., and I. We., became unusually resistive and rigid. Their scores on the tests corroborate these statements. As compared to a control group of 10 college students at 10.5 per cent oxygen, these physiological responses were more accentuated, but no more so than in a third control group of psychoneurotics where fatigue appeared to be a prominent symptom.

TABLE IX. PHYSIOLOGICAL TESTS

This table gives the respiration, pulse, systolic and diastolic blood pressure for every patient at the beginning and end of each experiment under the various gas mixtures as indicated.

Subject	Series	Control air			10.5% Oxygen			50% Oxygen			Control air		
		Res pir- ation	Pulse	Blood pres- sure	Res pir- ation	Pulse	Blood pres- sure	Res pir- ation	Pulse	Blood pres- sure	Res pir- ation	Pulse	Blood pres- sure
V. Be.	1	23	66	132/98	21	121	140/80	19	87	124/100	21	69	150/74
	2	22	93	142/78	22	128	140/64	20	73	126/90	21	67	138/80
N. Br.	1	22	80	82/60	20	100	120/78	20	89	114/70	20	80	104/80
	2	20	82	92/64	26	157	110/82	21	79	102/72	20	72	96/84
S. Li.	1	19	92	102/60	24	101	122/46	23	85	108/42	20	82	106/58
	2	18	83	95/55	20	98	132/62	22	82	100/56	19	71	110/62
W. Mc.	1	20	84	124/74	18	98	124/72	19	80	122/90	21	82	132/88
	2	19	80	124/82	21	108	130/38	19	77	124/90	21	82	128/92
M. St.	1	16	90	102/66	16	84	114/84	18	90	122/60	16	90	112/68
	2	17	85	96/68	18	88	100/72	17	79	96/60	16	80	108/80
F. Ba.	1	21	72	104/76	38	110	106/64	18	74	110/70	18	73	106/60
	2	22	70	102/70	37	137	94/40	17	72	104/70	23	74	110/80
B. He	1	21	98	110/68	24	112	120/66	20	88	100/78	20	90	116/80
	2	17	84	100/70	24	104	100/74	19	76	100/76	18	89	110/80
A. Ma.	1	26	82	128/82	20	85	100/48	20	81	140/96	16	80	140/80
	2	24	76	120/76				17	84	140/96	17	82	140/80
L. Sa.	1	22	90	104/74	26	80	80/66	20	78	112/74	17	84	120/62
	2	20	82	106/70	24	88	80/64	14	76	100/80	20	86	106/62
A. Si.	1	21	93	132/84	22	110	130/56	16	72	140/86	18	80	134/70
	2	21	86	138/98	21	101	130/54	18	68	134/80	19	74	132/80
M. Fe.	1	13	74	94/72	18	88	90/40	14	75	100/60	14	74	96/64
	2												
G. Gi.	1	24	106	126/80	19	100	102/43	18	82	110/80	21	89	110/80
	2	22	100	110/78	18	93	95/52	20	81	104/68	21	80	104/68
M. Po.	1	16	78	118/65	20	106	130/50	15	70	108/60	17	77	116/66
	2	18	72	108/68	24	130	98/40				15	72	102/56
E. We.	1	15	74	114/100	18	98	120/80	16	75	118/60	19	83	140/64
	2	16	78	110/90	18	100	120/78						
I. We.	1	17	80	104/60	19	96	110/50	17	82	104/60	16	90	108/58
	2	16	82	100/68	20	126	80/42						

The following conclusions may be suggested concerning the psychological study. First, there seemed to be no consistent improvement from group to group, and only in a few cases were there any consistent changes in individual patients. Three of the subjects of Group I (V. Be., N. Br., and S. Li.) did better in the tests toward the end of the experiment which was more probably due to practice or increased cooperativeness than to the oxygen and carbon dioxide treatments. In Group III, one subject (F. Ba.) was significantly better in the tests at the end, and A. Si. was more active, but two subjects (B. He., and A. Me.) were noticeably less cooperative and made increasingly poorer scores on the test. In Group III, there were no apparent changes. M. Po. became slightly more active or cooperative—which is not unusual in such patients with continual encouragement. Certainly in none of the patients were there changes for the better which might have been ascribed to the treatments with the possible exception of F. Ba. But this change might well have occurred outside the chamber. Secondly, the physiological measurements involving respiration, pulse and blood pressure were within the normal ranges with the possible exception of the responses of several of the patients to low oxygen (10.5 per cent oxygen) which appeared to be atypical. However, there is no evidence available for ascribing this to an anoxic condition, neuro-circulatory failure or altered metabolism.

SUMMARY

Five patients resided continuously for two and one-half months in an oxygen chamber at a concentration of approximately 50 per cent oxygen. During this period of time they received treatments of carbon dioxide and oxygen daily. After each carbon dioxide inhalation attempts, extending over four to five hours, were made to establish communicability with the patients. Two of the five patients gained a state of remission; the clinical history of these two patients had indicated a favorable prognosis.

A second group of five patients was treated similarly in an oxygen dormitory, except that no attempts to establish communicability were made. None of these showed clinical improvement.

A third group of five patients resided in the oxygen dormitory at

a concentration of approximately 50 per cent oxygen, without carbon dioxide treatment and without attempts made to establish communicability. None of these patients showed clinical improvement.

A fourth group of five patients, living under normal atmospheric conditions, and the usual hospital routine, was given daily inhalations of carbon dioxide and oxygen. Of this group one patient showed clinical improvement, but did not gain a remission.

In all patients the arterial oxygen content and oxygen saturation were within normal range before treatment was instituted. The effect of inhalation of 50 per cent oxygen on the arterial oxygen saturation was not dissimilar to its effect on normal individuals.

The arterial carbon dioxide content of the patients ranged within normal limits, both before and after oxygen, and oxygen and carbon dioxide treatments.

In the patients treated by oxygen alone there was generally a decrease of 10 to 15 per cent in circulating hemoglobin. Except in one instance, the hemoglobin in those patients who received inhalations of oxygen and carbon dioxide did not show a diminution.

The blood chemical studies showed no effect of long-continued oxygen inhalation on the urea nitrogen, uric acid or blood sugar content of venous blood.

Basal metabolic determinations varied so much that no consistent conclusions could be drawn.

Under various psychological tests no consistent improvement was observed in the cases who did not gain a remission.

Physiological measurements, involving respiration, pulse and blood pressure, were generally within normal range, both before and after the treatment administered.

CONCLUSION

From the observations made in this study, it does not appear that oxygen and carbon dioxide treatment of catatonic dementia præcox patients is to be advocated as a general therapeutic procedure. We are unable to draw definite conclusions regarding the role played by this treatment in the recovery of two patients.

REFERENCES

1. Loevenhart, A. S., Lorenz, W. F., and Waters, R. M.: Cerebral Stimulation, *J. A. M. A.*, xcii, 880-883, 1929.
 2. Kaufman, M. R., and Spiegel, E. A.: Experimentelle Analyse der Beeinflussung katatoner Zustände durch Einatmen von Kohlensäure-Sauerstoffmischungen. *Ztschr. f. d. ges. Neurol. u. Psychiat.* cxvii, 312-320, 1930.
 3. Solomon, H. S., Kaufman, M. R., and d'Elseaux, F.: Some effects of inhalation of carbon dioxide and oxygen and of intravenous sodium amytal on certain neuropsychiatric conditions. *Am. J. Psychiat.* x, 761-769, 1931.
 4. Lasche, P. G., and Rubin, H.: Carbon Dioxide-Oxygen Inhalations in Catatonic Dementia Præcox. *U. S. Vet. Bur. M. Bull.*, VI, 1037-1041, 1930.
 5. Leake, C. D., Guedel, A. E., and Botsford, M. E.: Stimulating effect of carbon dioxide inhalations in dementia præcox catatonica. *Calif. & West. Med.*, xxxi, 20-23, 1929.
 6. Warburg, O., and Meyerhof, O.: Ueber Atmung in abgetöteten Zellen und in Zellfragmenten. *Arch. f. d. ges. Physiol.* cxlviii, 295-310, 1912.
 7. Barcroft, J.: *The Respiratory Function of the Blood.* Cambridge University Press, 1914.
 8. Freeman, W.: Psychochemistry; Some physico-chemical factors in mental disorders. *J. A. M. A.*, xcvi, 293-296, 1931.
 9. Haldane, J. S.: *Respiration.* Yale University Press, 1922.
 10. Barcroft, J.: Anoxaemia. *Lancet*, II, 485-489, 1920.
 11. Schneider, E. C., Truesdell, D., and Clarke, R. W.: Respiratory Changes During and After a Period of Anoxemia. *Am. J. Physiol.* LXXI, 714-728, 1925.
 - 11a. McFarland, R. A.: The Psychological Effects of Oxygen Deprivation (Anoxemia) on Human Behavior. *Arch. Psychol.* no. 145, 1932.
 12. Palthe, Wulfften van P. M.: Ueber Alkoholvergiftung. *Deutsche Ztschr. f. Nervenhe.* LXXII, 79-100, 1926.
 13. Segal, L., and Hinsie, L. E.: The cyanosis of dementia præcox. A study of the gas relationships of the blood; with clinical observations. *Am. J. M. Sc.*, clxxi, 727-740, 1926.
 14. Koch, W., and Mann, S. A.: A chemical study of the brain in healthy and diseased conditions, with especial reference to dementia præcox. *Arch. Neurol. and Psychiat.*, Lond., IV, 174-219, 1909.
 15. Freeman, W.: Deficiency of catalytic iron in the brain in schizophrenia. *Arch. Neurol. and Psychiat.* xxiv, 300-310, 1930.
 16. Wuth, O.: Körpergewicht. Endocrines System Stoffwechsel. In *Bunke's Handbuch der Geisteskrankheiten. Dritter Band Allgemeiner Teil III*, 154-217, 1928.
 17. Henry, G. W.: Basal Metabolism and Emotional States. *J. Nerv. and Ment. Dis.*, LXX, 598-605, 1929.
 18. Hoskins, R. G., and Sleeper, F. H.: Basal Metabolism in Schizophrenia. *Arch. Neurol. and Psychiat.*, XXI, 887-900, 1929.
 19. Golla, F. L.: Some recent work on the pathology of schizophrenia. *J. Ment. Sc.*, LXXV, 661-670, 1929.
 20. Kempf, E. J.: Affective-Respiratory Factors in Catatonia. *M. J. and Rec.*, CXXXI, 181-185, 1930.
 21. Wolff, H. G., and Lennox, W. G.: Cerebral circulation: effect on pial vessels of variations in oxygen and carbon dioxide content of blood. *Arch. Neurol. and Psychiat.*, xxiii, 1097-1120, 1930.
 22. Langenstrass, K. H., and Buchman, E. F.: Stupor in zirkulären und schizophrenen Psychoses. Versuch einer aktiven Behandlung. *Ztschr. f. d. ges. Neurol. u. Psychiat.*, CXXXV, 83-94, 1931.
 23. Barach, A. L.: Oxygen Chamber Simplified in Design and Operation. *J. A. M. A.*, XCVII, 390-391, 1931.
- A new type of oxygen chamber. *J. Clin. Invest.* II, 463-476, 1925-26.

- New Oxygen Chamber Ventilated by Thermal Circulation of Air. *Mod. Hosp.*, XXXII, 144, 1929.
- Importance of Ventilation in Oxygen Tent and Oxygen Chamber Therapy, with description of improved oxygen tent, *N. Y. State J. Med.*, XXXI, 1263-1266, 1931.
- Use of filtered-air chambers in pulmonary tuberculosis. *Am. Rev. Tuberc.* XXVII, 508-514, 1933.
- 24. Van Slyke, D. D., and Neill, J. M. The determination of gases in blood and other solutions by vacuum extraction and manometric measurement. *J. Biol. Chem.* LXI, 523-574, 1924.
- 25. Barach, A. L., and Richards, D. W., Jr. Effects of treatment with oxygen in cardiac failure. *Arch. Int. Med.*, XLVIII, 325-347, 1931.
- 26. Campbell, J. A.: Influence of oxygen tension in inspired air upon oxygen tension in tissues. *J. Physiol.*, cx, 20-29, 1925.
- 27. Barach, A. L.: The effects of atmospheres rich in oxygen on normal rabbits and on rabbits with pulmonary tuberculosis. *Am. Rev. Tuberc.* xiii, 293-316, 1926.
- 28. Barach, A. L., and McAlpin, K. R.: Negative results of oxygen therapy in polycythemia vera. *Am. J. M. Sc.*, CLXXXV, 178-181, 1933.
- 29. d'Elseaux, F. C., and Solomon, H. C.: Use of carbon dioxide mixtures in stupors occurring in psychoses. *Arch. Neurol. and Psychiat.*, xxix, 213-230, 1933.

B. TUBERCULOSIS IN PSYCHOTIC PATIENTS*

(*Loewenstein's Method*)

BY NICHOLAS KOPELOFF, PH. D., AND E. LOEWENSTEIN, M. D.

FROM THE DEPARTMENTS OF BACTERIOLOGY OF THE PSYCHIATRIC INSTITUTE AND HOSPITAL
AND THE STAATLICHES SEROTHERAPEUTISCHES INSTITUT, VIENNA

Professor Loewenstein has developed a method for cultivating the tubercle bacillus directly from the blood. Briefly stated the method consists of hemolysing 5 to 10 c.c. of citrated blood by repeated washing with sterile distilled water, treating the slight hemoglobin-free residue with sulphuric acid to kill contaminants, and then spreading it on to a special medium. The principal features of this medium are the use of eggs, asparagin, salts, sugar and a dye, congo red. A modified Petraghani medium with malachite green is also used. The tubes are sealed with sealing wax and placed in the incubator until growth appears. In most instances macroscopic growth is typical of *Bacillus tuberculosis*. Where growth is very slight or suspicious, an acid-fast stain is made and subcultures are attempted.

The results of applying this method have proven highly successful in the hands of Professor Loewenstein and a few other workers but in the large majority of instances others have failed to corroborate these findings; so that at the present time one may safely say that the consensus of opinion is overwhelmingly against accepting Loewenstein's results. They are of course revolutionary since he finds a large percentage of positives in patients without any clinical signs of tuberculosis; neither elevation of temperature, râles or roentgen shadows. The principal syndromes in which these high positive correlations are found are eye tuberculosis, skin tuberculosis, arthritis, chorea, dementia præcox and multiple sclerosis. Of late Loewenstein has added spinal fluid findings to his blood culture examinations.

Since it is well known that a high percentage of dementia præcox patients in various institutions for mental disease have tuberculosis and furthermore since it has long been recognized that in

*Read at the Quarterly Conference at the Psychiatric Institute and Hospital, December 16, 1933, and abstracted in *Proc. Soc. Exp. Bio. Med.*, 1933, 31, 61-62.

every age group the incidence of tuberculosis is higher in dementia præcox than in the ordinary population it was imperative to study this problem closely. The original suggestion for doing so came from Dr. Landsteiner of the Rockefeller Institute.

Our procedure was planned very simply. Professor Loewenstein had offered to examine any number of bloods that we sent him with the diagnosis unrevealed. Without his knowledge we took *triplicate* specimens of 7 c.c. of citrated venous blood from a number of males in the Psychiatric Institute and Hospital. These were numbered in sequence and the key to these numbers held only by one of us (N. K.). In addition to patients with dementia præcox who formed the largest number in our group we included also those suffering from other mental disorders and a group of male nurses and physicians as controls. These bloods were sent to Professor Loewenstein in Vienna and he reported his findings to us before being informed of the diagnosis of the patient. As a matter of fact, he remained unaware that we had sent blood from mentally normal subjects until our arrival in Vienna this summer. The results of his direct cultivation were as follows:

TABLE 1. RESULTS OF BLOOD CULTURE

Diagnosis	Total cases examined	Positive microscopic only	Positive macroscopic and microscopic
Dementia præcox	34	5	15
Psychoneurosis	4	1	2
Manic-depressive	2	.	1
Involution melancholia	2	1	2
Total	42	7	20
Controls	—	—	—
(Physicians and nurses)	12	0	0

From the above Table 1 it will be seen that the incidence of positive findings is high in psychotic patients compared with normals. Such positive findings refer to patients, not to triplicate specimens. As a matter of fact there was no patient in which all three specimens of blood yielded a positive culture. In one-fourth of the cases reported positive 2 out of 3 blood samples were positive while in

the remaining instances only 1 out of 3 blood specimens proved to be positive. In this connection it is interesting to note that Dr. Henri Claude of the St. Anne Hospital in Paris working with the bacteriologists of the Pasteur Institute had approximately 50 per cent positive blood cultures for tuberculosis in dementia præcox but did not have any positives in others. One might indulge in considerable speculation as to the meaning of these findings.

The immediate question which arises is how do we know that the acid-fast bacilli of characteristic growth on this medium are *Bacillus tuberculosis*? We brought back some 13 tubes which still remained in Professor Loewenstein's incubator and the guinea pigs which we inoculated with these all came down with typical lesions smears of which showed large numbers of typical acid-fast rods. Not only did the inguinal glands, spleen and liver contain nodules but frequently the lungs as well. We made histopathological examinations which confirmed these findings. Further, the infected material was streaked on Loewenstein's medium which we made and all have grown abundant macroscopic colonies which yield acid-fast rods.

In Table 2 are given comparative results of guinea pig findings. It will be seen that cultivation on fresh Loewenstein medium is superior to the other diagnostic tests used. The reason for omitting further data on guinea pigs is that we attempted cultivation on Loewenstein media that was not strictly fresh thereby vitiating any comparative value such a procedure might have had. Nevertheless, tubercle bacilli were cultivated from at least one organ of every guinea pig examined.

The fact that we have found *Bacillus tuberculosis* in the blood of approximately one-half the psychotic patients examined and never in a single one of the 12 mentally normal subjects would immediately focus attention upon the physical status of the patients in question. For the most part they were males ranging from 20 to 35 years of age. Dr. M. M. Harris, research associate in internal medicine, made a careful examination of patients and subjects alike and in only one case, that of a male nurse, was there any suspicion of an active tuberculous process. This suspicious case

showed a soft shadow in the lung. Roentgenologically patients and subjects were negative.

It is difficult at the present time to explain why other investigators fail to corroborate Loewenstein's findings. In our own laboratory (Psychiatric Institute) we have thus far failed to cultivate tubercle bacilli from the blood of the same cases examined by Loewenstein. In an attempt to extend the diagnostic value of this method, however, we have recently succeeded in growing tubercle bacilli from the *spinal fluid* of a suspected case of tuberculous meningitis.* Colonies were macroscopically visible in two weeks. Smears from them yielded numerous acid-fast rods. A guinea pig injected with this culture developed a local abscess in 10 days, material from which contained many acid-fast rods. The animal gave a positive tuberculin test and was sacrificed 21 days after injection. Grossly and histopathologically there was evidence of a tuberculous process. Reducing the time required for a laboratory diagnosis is of particular importance in this disease and we are therefore extending our series of cases.

The interest and assistance of Dr. C. O. Cheney, director, was invaluable during this investigation as was that of Lenore M. Kopeloff and John L. Etchells in our laboratory.

*We are greatly indebted to Dr. Charles Flood of Dr. W. W. Palmer's staff of the Presbyterian Hospital, New York, for his kind cooperation in furnishing this specimen.

B. TUBERCULOSIS IN PSYCHOTIC PATIENTS

TABLE 2. GUINEA PIG FINDINGS

G. P. No.	Organ	Gross pathology	Stained smear	Histo-pathology	Cultivation
402	Gland†	+	+	+	+
	Spleen	+	+	+	+
	Liver	+	+	±*	+
	Lung	±	0	0	+
403	Gland	+	+	+	+
	Spleen	+	+	+	+
	Liver	+	+	+	+
	Lung	+	+	±	+
407	Gland	+	+	+	+
	Spleen	+	+	+	+
	Liver	+	+	+	+
	Lung	+	0	+	+
411	Gland	+	+	+	+
	Spleen	+	+	+	+
	Liver	+	±	+	+
	Lung	0	±	0	+
412	Gland	+	+	+	+
	Spleen	+	+	+	+
	Liver	±	0	0	+
	Lung	0	0	0	+
413 **	Gland	+	+	+	+
	Spleen	+	+	+	
	Liver	+	0	0	+
	Lung	0	0	±	

†Right inguinal.

*Indicates a positive finding of lesser degree than +

**Results incomplete

HEREDITARY AND ENVIRONMENTAL FACTORS IN THE CAUSATION OF DEMENTIA PRAECOX AND MANIC-DEPRESSIVE PSYCHOSES

BY HORATIO M. POLLOCK, BENJAMIN MALZBERG, AND
RAYMOND G. FULLER

CHAPTER I

Family Stock of Manic-Depressive Patients

In the introduction to this series of articles which was published in the *PSYCHIATRIC QUARTERLY* for July, 1933, the origin and general scope of the study were explained and the work of other investigators in this field was reviewed. Special attention was directed to the studies of family histories of mental patients by Koller, by Diem and by Jolly in which attempts were made to compare the family stocks of such patients with those of groups of so-called healthy persons.

Continuing the general inquiry we present in this article the results of an original study of the family stock of a group of manic-depressive patients.

The cases under investigation included first admissions to the Utica State Hospital, received for treatment during the three years 1928, 1929 and 1930. No selective factor other than the presence of a manic-depressive psychosis operated in the choice of cases for study. The Utica State Hospital was chosen as the locus of the investigation, because its admission district includes a population accessible to investigation and in which family relationships may be traced without great difficulty.

The schedule used in the investigation called for information concerning the mental and physical health of the father and mother prior to the birth of the patient; the health records of the paternal and maternal grandparents; the economic condition of the parents and their social life during the patient's childhood; the occurrence of mental and nervous diseases, mental defect, alcoholism and criminality in the parents and their relatives, and in the siblings and children of the patient; the latter's early environment; the composition of the household; the relations of the patient to step-parents, foster-parents, or grandparents; the physical condition

and character of the patient's early home; the patient's environment at the time of onset of the disease; the developmental history of the patient; his social history, such as occupational record; his sex history and marital relations; and an account of all precipitating factors associated with the onset of the psychosis. The information was obtained, wherever possible, through the direct testimony of the patient, close relatives, and intimate associates. Interviews were held by experienced social workers at the hospital and in the field with those whose testimony could be considered germane. All statements concerning the patient and his family were thus verified through the direct testimony of first-hand sources; mere hearsay was avoided, wherever possible.

Included in the investigation are 155 patients, of whom 60 are males and 95 females. This agrees with the usual ratio of males to females found among all manic-depressive first admissions to the New York civil State hospitals. The females were older than the males, the average ages at first admission being 42.3 and 39.3 years, respectively. The average ages at the onset of the psychosis were but slightly less, being 42.1 and 38.9 years, respectively. Of the 60 males, 54 were described as of average intelligence, and 6 as of borderline mentality. Among the 95 females, 78 were of average mentality, 15 were of borderline mentality and 2 were morons.

The following table summarizes the nativity and parentage of the patients:

TABLE I. NATIVITY AND PARENTAGE OF PATIENTS WITH MANIC-DEPRESSIVE PSYCHOSES

	Number			Per cent		
	Males	Females	Total	Males	Females	Total
Native born	46	74	120	76.7	77.9	77.4
Of native parentage	31	42	73	51.7	44.2	47.1
Of foreign parentage	10	23	33	16.7	24.2	21.3
Of mixed parentage	5	8	13	8.3	8.4	8.4
Of unknown parentage .....	..	1	1	..	1.1	0.6
Foreign-born	14	21	35	23.3	22.1	22.6
Total	60	95	155	100.0	100.0	100.0

Of the 155 patients, 120, or 77.4 per cent, were native born, and 35, or 22.6 per cent, foreign born. These differ from the corresponding percentages for all first admissions to the New York civil State hospitals; in 1932, for example, 60.3 per cent of all the first admissions were native, and 39.4 per cent, foreign born.¹ In the State as a whole, on April 1, 1930, the native white constituted only 71.2 per cent of the total population, the foreign white 25.4 per cent. Of the 155 patients, 73, or 47.1 per cent, were of native parentage; 33, or 21.3 per cent, were natives of foreign parentage; and 13, or 8.4 per cent, natives of mixed parentage. These again differ materially from the distribution among all first admissions, among whom, in 1932, the corresponding percentages were 29.2, 21.5, and 9.1. They also differ from the State as a whole, for according to the census of April 1, 1930, native whites of native parentage constituted 35.5 per cent of the total population, native whites of foreign parentage constituted 26.6 per cent, and native whites of mixed parentage, 9.0 per cent.

It is also of interest to note that of the 120 native patients, 102, or 85.0 per cent, were born in the State of New York, and only 18, or 15.0 per cent, in other states.

The nativity of the foreign born is shown in the accompanying table.

TABLE II. NATIVITY DISTRIBUTION OF FOREIGN-BORN PATIENTS

Nativity	Males	Females	Total
Austria	1	..	1
Canada	2	1	3
Czechoslovakia	1	..	1
England	3	3	6
Germany .....	..	3	3
Ireland .....	..	1	1
Italy	3	5	8
Lithuania	1	1	2
Poland	3	2	5
Scotland .....	..	2	2
Sweden .....	..	1	1
Switzerland .....	..	1	1
Wales .....	..	1	1
Total	14	21	35

Of the 35 foreign-born patients, 8 were born in Italy, 6 in England, and 5 in Poland. This differs from the nativity distribution of all first admissions principally in the absence of any patients who were born in Russia, and the presence of only one patient who was born in Ireland.

Information relative to the social background of the patients may be obtained from a consideration of their economic status, which is summarized in the following table.

TABLE III. ECONOMIC STATUS OF PATIENTS WITH MANIC-DEPRESSIVE PSYCHOSES

Economic status	Number			Per cent		
	Males	Females	Total	Males	Females	Total
Dependent	2	6	8	3.3	6.3	5.2
Marginal	46	75	121	76.7	78.9	78.1
Comfortable	12	14	26	20.0	14.7	16.8
Total	60	95	155	100.0	100.0	100.0

Of the 155 patients, 8, or 5.2 per cent, were described as dependent; 121, or 78.1 per cent, as marginal, and 26, or 16.8 per cent, as in comfortable circumstances. This differs from the corresponding distribution of all first admissions to the New York civil State hospitals in the smaller proportion of dependent cases, and the larger proportion of patients with a comfortable economic status.

The economic and social status of the patients may also be viewed through a consideration of occupational classifications. Of the males there were only 2 of a professional status, 1 being an artist, the other a teacher; 10 were described as farmers, and 15 as skilled workers, such as electrician, carpenter, molder. The unskilled laborers totaled 20. The remaining patients belonged largely to the occupations included in the term clerical workers. On the whole it is obvious that the occupational classification corresponds with the economic status of the majority of patients as shown in the preceding table. The economic status of the female patients is determined in the main by that of the husband, 53 being described as housewives. An additional 12 had no gainful occupation of any kind. It is interesting to note that of the remaining cases 6 were described as nurses.

A further description of the patients is obtained from a consideration of their marital status.

TABLE IV. MARITAL CONDITION OF PATIENTS WITH MANIC-DEPRESSIVE PSYCHOSES

	Number			Per cent		
	Males	Females	Total	Males	Females	Total
Single	16	27	43	26.7	28.4	27.7
Married	40	55	95	66.7	57.9	61.3
Widowed	3	10	13	5.0	10.5	8.4
Divorced .....	..	1	1	..	1.1	0.6
Separated	1	2	3	1.7	2.1	1.9
Total	60	95	155	100.0	100.0	100.0

Of the 155 admissions, 43, or 27.7 per cent, were single, and 95, or 61.3 per cent, married. These differ from the corresponding percentages for all first admissions. In 1932, for example, 36.9 per cent of all first admissions were single, and only 39.7 per cent, married.² If we limit the comparison to first admissions with manic-depressive psychoses we find 33.3 per cent single, and only 54.4 per cent, married. It should be also noted that whereas female admissions usually have a higher percentage of married than males, this relation is reversed among the male and female patients under analysis in this study.

The following table summarizes the distribution of siblings in the families of the patients.

TABLE V. NUMBER OF SIBLINGS IN FAMILIES OF PATIENTS WITH MANIC-DEPRESSIVE PSYCHOSES

Number of siblings in family (including patient)	Families of male patients	Families of female patients	Total families	
			Number	Per cent
1	4	6	10	6.5
2	10	3	13	8.4
3	4	11	15	9.7
4	7	4	11	7.1
5	10	14	24	15.5
6	7	18	25	16.1
7	7	9	16	10.3
8	4	8	12	7.7
9	..	6	6	3.9
10 and over	7	16	23	14.8
Total	60	95	155	100.0

There was an average of 5.9 siblings per family among all patients. Among the families of the male patients the average was 5.4, compared with 6.3 among females. These averages are high, and represent practically completed families.

The following table summarizes the order of birth of the patients:

TABLE VI. ORDER OF BIRTH OF PATIENTS WITH MANIC-DEPRESSIVE PSYCHOSES

Order of birth	Males	Females	Total	
			Number	Per cent
1	13	20	33	21.3
2	14	20	34	21.9
3	8	14	22	14.2
4	9	10	19	12.3
5	7	9	16	10.3
6	4	4	8	5.2
7	4	9	13	8.4
8	1	3	4	2.6
9	..	..	..	..
10 and over	..	6	6	3.9
Total	60	95	155	100.0

From the fact that the female patients came from larger families, we may anticipate that they are later in the order of birth than the males. This is verified by the average results which show 3.3 for males, and 3.8 for females.

From these general considerations, we may now turn to the problem of heredity. In our first approach we shall not consider any particular theory of inheritance nor the manner of transmission of mental disease from generation to generation. Taking the observed incidence of mental diseases among grandparents, parents, uncles and aunts, and siblings of patients, as our point of departure, we shall ask how the frequencies of mental diseases in these several generations compare with those which may be expected in other populations. Koller and Diem were the first to attempt comparisons of such frequencies between the families of patients with mental disease, and the families of healthy individuals. Both investigators found higher percentages of individuals with so-called tainting factors in the families of patients with mental disease, though

the differences were smaller than had been anticipated.³ However, we found reasons for questioning the degree of reliability of the populations described as 'normal.'⁴ In recent years Rüdin and his associates in the Deutsche Forschungsanstalt für Psychiatrie, in Munich, have attempted to arrive at samples of the normal population through a consideration of the spouses of patients with general paralysis, and with cerebral arteriosclerosis.^{5, 6, 7} The selection of the spouses is made on the assumption that these disorders being presumably on a non-hereditary basis, the presence of the disease in husband or wife will not have been a factor in the inheritance of the marital partner. Luxenburger, in particular, feels that such a selection is free from any of the defects which have been attributed to the control series used by Koller and Diem.⁸ We cannot feel the same assurance that he has secured a random sample of the normal population, and must object to the method on the further ground that the sample is necessarily too limited in size.⁹ It is in fact very unlikely that a satisfactory sample of a normal population (adequate in size and randomness of choice) could be secured for the purpose of comparison with the families of mental patients. The selective factors operating to vitiate the normal distribution of samples of a general population are extremely subtle, and one can hardly ever be certain that such factors have not entered into the choice of a numerically limited sample.

We may, however, proceed in the following manner. By means of our family histories we are enabled to count the total number of relatives and the number of affected individuals in each group of relatives. The proportion of affected individuals may then be compared with the corresponding proportions for the general population. If each class formed a random sample of the general population, the proportion of affected individuals in the class should not differ materially from that of the general population. If, however, the proportion in the general population was significantly greater or smaller, we would reason that the two populations are differentiated from each other; and if the family histories indicated a higher proportion of affected individuals, we would reason, *caeteris paribus*, that the group under investigation has an inherited constitutional tendency towards mental disease. If on the other

hand the proportion of affected individuals was equal or sensibly less, it would be necessary to look elsewhere than to heredity for an explanation of the origin of the disease.

In such an analysis it is necessary to know the expectation of mental disease. Under given conditions of mortality it is required to know how many in a given generation will develop mental disease in the course of a life time. The time element, or period of exposure, is of essential importance, and it does not appear that this has been given adequate consideration in previous studies, such as those of Koller, and Diem, or even that of Sünner.¹⁰ Wagner von Jauregg saw the importance of such an approach, and attempted an analysis on the basis of the total expectation of mental disease.¹¹ At that time, however, the data for such treatment were inadequate.

The expectation has been determined, however, for the State of New York. In an earlier study¹² we defined the expectation of mental disease as the chance of an individual being treated in a hospital for mental disorders in the course of a life time. In accordance with this definition it was found that in 1920 in the State of New York, males had a chance of 4.7 in a 100 of developing a mental disorder, females, 4.4 in a 100. On the theory of random-sampling, approximately 4.7 per cent of our male populations, and 4.4 per cent of our female populations should develop a mental disease. These may however be called "crude" expectations for the families of the patients, since the assumptions underlying the expectations for 1920 cannot be applied with precision directly to those of the older generations. The expectations for 1920 are the result of rates of mental disease and rates of mortality in that year. Both sets of rates have been subject to a secular trend. The rate of mental disease has been increasing from decade to decade and general mortality rates have been decreasing. Twenty and forty years ago, admission rates were decidedly lower than they are today, whereas death rates were materially higher. Consequently the expectation of mental disorders in the several generations under analysis must have been less than 4.7 per 100, and 4.4 per 100, for males and females respectively. The grandparental generation included the period from approximately 1820 to 1900; the

parental generation and the collaterals included a period from approximately 1850 to date. The siblings embrace the period beginning at about 1890. Considering the changes in death rates and rates of mental disease it appears conservative to estimate, in comparison, with the expectations of 1920, an average expectation of 4.0 per 100 for males and 3.5 per 100 for females throughout the earlier periods. Applications of such corrected expectations to the families of the patients will give figures legitimately comparable with the recorded findings.

The following table provides data concerning the families of the 155 patients.

There was a total of 2,572 relatives of the 155 patients. No details were recorded in 195 cases, leaving a total of 2,377 with recorded histories. Among these 2,377 individuals there were 58 with mental diseases. There was 1 case of senile psychosis, 1 of psychosis with cerebral arteriosclerosis, 1 of involution melancholia, 1 of epileptic psychosis, 1 of psychoneurosis, 4 of general paralysis, 2 of alcoholic psychoses, 17 of manic-depressive psychoses, 10 of dementia præcox, and 20 of undiagnosed psychoses.

The total of recorded psychoses is undoubtedly too low. This is due in part to the fact that in each degree of relationship there are still individuals exposed to the chance of developing a mental disorder. This may be corrected, in part, by applying the appropriate expectations of mental disease. Since these expectations are increasing from decade to decade, the application of the 1920 rates to the appropriate age groups still exposed to mental disease results in a conservative statement, with the probability of these being understatements. There were 646 individuals in such groups; among these there is a reasonable expectation of 34.7 cases of mental disease, giving a 'corrected' total of 92.7 cases among all the relatives. A further source of error lies in the incomplete histories of many of the patients. Not all were native born, with families easily accessible to investigation by the field worker. As already noted there were 33 cases of natives of foreign parentage and 13 of mixed parentage. In the case of the male patients, for example, there were 26 fathers and 25 mothers who were foreign-born. Of these parents 19 never came to the United States. Obviously many

TABLE VII. FREQUENCY OF MENTAL DISORDERS AMONG THE RELATIVES OF 155 PATIENTS WITH MANIC-DEPRESSIVE PSYCHOSES

Relationship	Total number of relatives	No details recorded	Number of histories recorded	Total without mental disease or other specified defect	Totals			Psychoses										Other defects								
					Number with psychoses	Number with other defects	Total defects or diseases recorded	Senile psychosis	With cerebral arteriosclerosis	General paralysis	Alcoholic psychoses	Manic-depressive	Involution melancholia	Dementia præcox	Epileptic psychoses	Psychoneuroses	Undiagnosed psychoses	Neurotic traits	Feeble-minded	Epileptic	Alcoholic	Drug addiction	Suicide			
Father	155	1	154	115	3	36	41	..	..	..	..	..	3	..	..	..	..	..	2	25	1	..	2	1	..	4
Mother	155	1	154	122	6	26	35	..	1	..	..	..	1	..	..	..	..	..	2	25	1	..	2	1	..	..
Paternal grandfather.	155	34	121	115	3	3	9	..	..	..	..	..	1	..	..	..	..	..	2	..	..	..	5	..	1	..
Paternal grandmother	155	37	118	115	1	2	3	..	..	..	..	..	..	..	..	..	..	..	1	2	..	..	..	..	..	2
Maternal grandfather	155	29	126	123	1	2	3	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..
Maternal grandmother	155	26	129	125	1	3	4	..	..	..	..	..	..	..	..	..	..	..	1	3	..	..	..	..	..	..
Paternal uncles	229	17	212	201	5	6	11	1	..	..	..	1	..	..	..	..	..	..	3	..	..	1	5	..	..	..
Paternal aunts	187	12	175	171	2	2	4	..	..	..	..	..	..	..	..	..	..	..	2	1	..	1	..	..	..	..
Maternal uncles	228	10	218	210	2	6	9	..	..	..	..	..	1	..	1	..	..	..	2	1	..	..	6	..	1	..
Maternal aunts	231	6	225	217	5	3	8	..	..	..	..	..	1	..	..	..	..	..	4	2	..	1	..	..	..	..
Brothers	380	11	369	333	15	21	36	..	..	3	1	3	..	5	1	..	..	..	2	7	5	..	7	..	2	..
Sisters	387	11	376	346	14	16	33	..	..	1	..	7	1	2	..	1	2	11	3	1	..	..	..	..	3	..
Total	2,572	195	2,377	2,193	58	126	196	1	1	4	2	17	1	10	1	1	20	64	10	5	44	1	13	..	..	..

more uncles, and aunts, and even brothers and sisters never came to the United States. These histories of mental disease are therefore based not on direct evidence, but on hearsay, and it is not beyond the bounds of reasonable probability, that they include individuals who should be added to the known total of cases of mental disease. A total of 92.7 cases of mental disease is therefore a minimum for the relatives of the patients. What total may we expect on the basis of the expectations for the general population? Applying expectations of 4.0 and 3.5 per 100 for males and females, respectively, to the several generations we obtain an expectation of 89.2 cases, slightly less than that found above.

The expectations for the several generations are summarized in the accompanying table.

TABLE VIII. COMPARISON OF EXPECTED WITH 'CORRECTED' TOTAL OF ACTUAL CASES OF MENTAL DISEASE IN THE FAMILIES OF 155 PATIENTS WITH MANIC-DEPRESSIVE PSYCHOSES

Relationship	Number with known histories	Expected cases of mental disease	Actual cases of mental disease	Anticipated cases
Father	154	6.2	3	1.6
Mother	154	5.4	6	1.8
Paternal grandfather	121	4.8	3	..
Paternal grandmother	118	4.1	1	0.2
Maternal grandfather	126	5.0	1	..
Maternal grandmother	129	4.5	1	0.2
Paternal uncles	212	8.5	5	2.1
Paternal aunts	175	6.1	2	2.1
Maternal uncles	218	8.7	2	3.0
Maternal aunts	225	7.9	5	2.7
Brothers	369	14.8	15	9.8
Sisters	376	13.2	14	11.2
Total	2,377	89.2	58	34.7

Among the 154 fathers there were 3 cases of mental disease (all manic-depressive); to these we may add the additional 1.6 cases calculated as explained above, giving a corrected total of 4.6. This is less than the expected total of 6.2, however. In the case of the 154 mothers there were 6 known individuals with mental disease (including 1 case of manic-depressive psychosis, and 2 of dementia præcox) with a further expectation of 1.8, giving a total of 7.8,

compared with a complete expectation of 5.4 cases. Among the 247 grandfathers there were 4 cases of mental disease (including 1 case of manic-depressive psychosis) compared with an expectation of 9.8. Among the 247 grandmothers, there were 2 known cases of mental disease, and a further expectation of 0.2, compared with a complete expectation 8.6. It is obvious, however, that the recorded total is likely to be an underestimate, in view of the many unknown and inaccessible cases among the grandparents, and the difficulty of securing reliable facts concerning them.

There were 430 uncles with complete histories, among whom there were 7 cases of mental disease, with a further expectation of 5.1 cases, giving a total of 12.1 compared with a complete expectation of 17.2 cases. The 400 known aunts included 7 cases of mental disease with a further expectation of 4.8 cases a total of 11.8, compared with a complete expectation of 14.0. Here again we must recognize the difficulties introduced by the presence of many cases inaccessible to investigation.

Among siblings, where the information is presumably much more complete than among the other relatives, we find a total of 369 brothers and 376 sisters with known histories. Among the former there were 15 cases of mental disease, including 3 of general paralysis, 1 of alcoholic psychosis, 3 of manic-depressive psychoses, 5 of dementia præcox, 1 of epileptic psychosis, and 2 of undiagnosed psychoses. There is a further expectation of 9.8 cases, giving a total of 24.8 cases, compared with a complete expectation of 14.8. Among the sisters there were 14 known cases of mental disease, including 1 of general paralysis, 7 of manic-depressive psychoses, 1 of involution melancholia, 2 of dementia præcox, 1 of psychoneurosis and 2 of undiagnosed psychoses. There is a further expectation of 11.2 cases, making a total of 25.2, compared with a complete expectation of 13.2 cases. Clearly among the siblings where the data are most adequate, there is a preponderance of mental disorders over that expected in a random sample.

Data concerning the relatives of the male probands are shown in the accompanying table.

TABLE IX. FREQUENCY OF MENTAL DISORDERS AMONG THE RELATIVES OF 60 MALE PATIENTS WITH MANIC-DEPRESSIVE PSYCHOSES

Relationship	Total number of relatives	No details recorded	Number of histories recorded	Total without mental disease or other specified defect	Totals			Psychoses										Other defects																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																					
					Number with psychoses	Number with other defects	Total defects or diseases recorded	Senile psychosis	With cerebral arteriosclerosis	General paralysis	Alcoholic psychoses	Manic-depressive	Involution melancholia	Dementia præcox	Epileptic psychoses	Psychoneuroses	Undiagnosed psychoses	Neurotic traits	Feebleminded	Epileptic	Alcoholic	Drug addiction	Suicide																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																
Father	60	1	59	42	..	17	17	5	..	1

There were 1,014 known relatives of the 60 male patients. The records were unknown or incomplete in 60 cases, leaving 954 with adequate histories. Among these there were 18 with mental disorders, including 1 case of general paralysis, 2 of alcoholic psychoses, 3 of manic-depressive psychoses, 3 cases of dementia præcox, 1 of epileptic psychosis, 1 psychoneurosis and 7 undiagnosed psychoses.

There were 377 relatives still exposed to the possibility of mental disorders. Among these there is a reasonable and conservative estimate of 13.3 cases, giving a total of 31.3 cases. The complete expectation was 35.9 cases.

The expectation in the several degrees of relationship are shown in the accompanying table.

TABLE X. COMPARISON OF EXPECTED WITH 'CORRECTED' TOTAL OF CASES OF MENTAL DISEASE IN THE FAMILIES OF 60 MALE PATIENTS WITH MANIC-DEPRESSIVE PSYCHOSES

Relationship	Number with known histories	Expected cases of mental disease	Actual known cases of mental disease	Anticipated cases
Father	59	2.4	..	0.8
Mother	59	2.1	2	0.9
Paternal grandfather	47	1.9	2	..
Paternal grandmother	47	1.6	..	0.1
Maternal grandfather	52	2.1	..	..
Maternal grandmother	53	1.9	..	0.1
Paternal uncles	104	4.2	2	1.0
Paternal aunts	89	3.1	..	0.9
Maternal uncles	101	4.0	1	1.0
Maternal aunts	95	3.3	3	1.0
Brothers	109	4.4	4	3.1
Sisters	139	4.9	4	4.4
Total	954	35.9	18	13.3

Among the 59 fathers there was an expected total of 2.4 cases of mental diseases, whereas none was recorded, and only 0.8 anticipated. Among the 59 mothers, there were 2 cases of mental disease and an anticipation of 0.9 cases, a total of 2.9, compared with a complete expectation of 2.1 cases.

The 99 grandfathers provided a total of 2 cases of mental disease, compared with an expectation of 4.0 cases. The 100 grand-

mothers presented no known cases of mental disease, with a further anticipation of only 0.2, compared with an expectation of 3.5 cases.

Among the 205 uncles there were 3 known cases of mental disease with anticipation of 2.0 additional cases, giving a total of 5, compared with a complete expectation of 8.2. The 184 aunts included 3 known cases of mental disease, with an anticipation of 1.9 additional cases, a total of 4.9, compared with a complete expectation of 6.4 cases.

In these orders of relationship the cases of mental disorder are all far less than that expected in a random sample. How much of this results from the presence of the unknown histories it is impossible to estimate. Among the siblings, however, where the data are more numerous and the histories given in greater detail, we find the cases of mental disease to be in excess of that expected in a random sample. The 109 brothers included 4 known cases of mental disease, and an anticipation of 3.1 additional cases, a total of 7.1 compared with a complete expectation of 4.4 cases. Among the 139 sisters there were 4 known cases, with an anticipation of 4.4 cases, a total of 8.4, compared with a complete expectation of 4.9 cases.

Data concerning the relatives of the female probands are shown in the following table.

There were 1,558 relatives in the families of the 95 female patients. Data were lacking or were incomplete in 135 cases, leaving 1,423 relatives, with recorded histories, among whom there were 40 cases of mental disease. These included 1 case of senile psychosis, 1 of psychosis with cerebral arteriosclerosis, 3 of general paralysis, 14 of manic-depressive psychoses, 1 of involution melancholia, 7 of dementia præcox, and 13 of undiagnosed psychoses. There were 610 relatives still exposed to the possibility of mental disease, with a conservative estimate of 22.6 additional cases, giving a total of 62.6, compared with a complete expectation of 53.6.

The expectations in the several degrees of relationship are shown in the following table.

TABLE XI. FREQUENCY OF MENTAL DISORDERS AMONG THE RELATIVES OF 95 FEMALE PATIENTS WITH MANIC-DEPRESSIVE PSYCHOSES

Relationship	Total number of relatives	No details recorded	Number of histories recorded	Total without mental disease or other specified defect	Totals			Psychoses										Other defects					
					Number with psychoses	Number with other defects	Total defects or diseases recorded	Senile psychosis	With cerebral arteriosclerosis	General paralysis	Alcoholic psychoses	Manic-depressive	Involution melancholia	Dementia præcox	Epileptic psychoses	Psychoneuroses	Undiagnosed psychoses	Neurotic traits	Feeble-minded	Epileptic	Alcoholic	Drug addiction	Suicide
Father	95	..	95	73	3	19	24	..	..	..	..	3	..	..	..	..	..	8	1	1	9	..	2
Mother	95	..	95	76	4	15	21	..	1	..	..	1	..	2	..	..	..	15	..	..	1	1	..
Paternal grandfather .	95	21	74	70	1	3	5	..	..	..	..	1	..	..	..	..	..	..	..	..	4	..	..
Paternal grandmother.	95	24	71	70	1	..	1	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..
Maternal grandfather.	95	21	74	71	1	2	3	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	2
Maternal grandmother.	95	19	76	75	1	..	1	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..
Paternal uncles	125	17	108	102	3	3	6	1	..	..	..	..	..	..	..	2	..	..	..	..	3	..	..
Paternal aunts.....	98	12	86	83	2	1	3	..	..	..	..	..	..	..	..	2	1	..	..	..	..	..	..
Maternal uncles	125	8	117	115	1	1	2	..	..	..	..	1	..	..	..	..	..	..	..	..	1	..	..
Maternal aunts.....	136	6	130	127	2	1	3	..	..	..	..	..	..	..	..	2	..	..	..	..	..	..	..
Brothers	262	2	260	234	11	15	26	..	..	2	..	3	..	4	..	2	5	5	5	..	4	..	1
Sisters	242	5	237	216	10	11	23	..	..	1	..	5	1	1	..	2	7	3	1	..	..	..	2
Total	1,558	135	1,423	1,312	40	71	118	1	1	3	..	14	1	7	..	13	37	9	2	22	1	7	

TABLE XII. COMPARISON OF EXPECTED WITH 'CORRECTED' TOTAL OF CASES OF MENTAL DISEASE IN THE FAMILIES OF 95 FEMALE PATIENTS WITH MANIC-DEPRESSIVE PSYCHOSES

Relationship	Number with known histories	Expected cases of mental disease	Actual known cases of mental disease	Anticipated cases
Father	95	3.8	3	0.8
Mother	95	3.3	4	0.9
Paternal grandfather.....	74	3.0	1	..
Paternal grandmother.....	71	2.5	1	0.1
Maternal grandfather.....	74	3.0	1	..
Maternal grandmother.....	76	2.7	1	0.1
Paternal uncles	108	4.3	3	1.1
Paternal aunts	86	3.0	2	1.2
Maternal uncles	117	4.7	1	2.0
Maternal aunts	130	4.6	2	1.7
Brothers	260	10.4	11	7.9
Sisters	237	8.3	10	6.8
Total	1,423	53.6	40	22.6

Of the 95 fathers with known histories, 3 developed mental disorders, with an anticipation of 0.8 more cases, a total of 3.8, compared with a complete expectation of 3.8. Among the 95 mothers, there were 4 cases with mental disease, and an anticipation of 0.9 cases, a total of 4.9, compared with a complete expectation of 3.3.

Among the 148 grandparents there were 2 cases of mental disease, compared with an expectation of 6.0 cases. Among the 147 grandmothers there were 2 cases of mental disease compared with an expectation of 5.2 cases.

The 225 uncles included 4 cases of mental disease with an expectation of 3.2 additional cases, a total of 7.2 cases, compared with a complete expectation of 8.7 cases. The 216 aunts included 4 cases of mental disease, with an anticipation of 2.9 additional cases, a total of 6.9, compared with a complete expectation of 7.6 cases.

The 260 brothers included 11 cases of mental disease, with a further expectation of 7.9 cases, a total of 18.9 cases, compared with a complete expectation of only 10.4 cases. The 237 sisters included 10 known cases of mental disease, with an anticipation of 6.8 additional cases, a total of 16.8, compared with a complete expectation of 8.3 cases.

There were 39 cases among the 165 male and female patients in which a father had a mental disease, or some other defect, such as a psychopathic condition or nervousness of a degree considered abnormal, feeble-mindedness or epilepsy, not associated with a psychosis, alcoholism, drug addiction or suicide. In these families there were 112 brothers and 85 sisters with adequate histories. The brothers included 4 known cases of mental disease with an anticipation of 2.7 additional cases, a total of 6.7, compared with a complete expectation of 4.5 cases. The sisters included 4 known cases of mental disease, with an anticipation of 2.0 additional cases, a total of 6.0, compared with a complete expectation of 3.0 cases.

There were 32 cases in which the mother was tainted. In these families there were 80 brothers and 65 sisters with adequate histories. Among the brothers there were 6 known cases of mental disease, with an anticipation of 2.2 cases, a total of 8.2, compared with a complete expectation of 3.2 cases. Among the sisters there were 5 known cases, with an anticipation of 2.0 cases, a total of 7.0, compared with a complete expectation of 2.3 cases.

In the 71 cases in which either the father or mother was tainted there were 192 brothers and 150 sisters with adequate histories. Among the brothers were 10 cases of mental disease with an anticipation of 4.9 cases, a total of 14.9, compared with a complete expectation of 7.7. Among the sisters were 9 known cases of mental disease, with an anticipation of 4.0 additional cases, a total of 13.0 compared with a complete expectation of 5.3 cases.

There were 9 histories in which both parents were tainted. In these cases, however, the siblings were too few in number to give significant results. There were 24 brothers, among whom there was 1 case of mental disease, and an anticipation of 0.4 cases, a total of 1.4, compared with a complete expectation of 1.0. The 19 sisters included 1 case of mental disease, and an anticipation of 0.4 cases, a total of 1.4, compared with an expectation of 0.7 cases.

Passing now from the frequencies of generalized mental diseases in the families of the 155 patients, with manic-depressive psychoses, let us limit the analysis to the incidence of manic-depressive psychoses.

In this analysis we shall require expectations of mental disease with respect to manic-depressive psychoses. No such tables have yet been prepared, but we may make approximations by considering the ratio of first admissions with manic-depressive psychoses to all first admissions.

Among the 2,377 relatives of the 165 patients with manic-depressive psychoses, who had adequately recorded histories there were 17 cases of manic-depressive psychoses. There were 307 individuals who were within age limits that still exposed them to an attack of a manic-depressive psychosis. In this group there is an estimated expectation of 4.1 cases, giving a total of 21.1 cases, compared with a complete expectation of 16.7 cases. The former total is undoubtedly too low, for there is the usual total of incomplete histories to be considered, in addition to which there are the undiagnosed psychoses, which may include several cases of manic-depressive psychoses.

There were 745 siblings to be considered. They include 369 brothers and 376 sisters. Among the former there were 3 cases of manic-depressive psychoses, and an anticipation of 1.0 case, a total of 4.0 cases, compared with a complete expectation of 1.8 cases. Among the sisters there were 7 cases of manic-depressive psychoses, and an anticipation of 1.9, a total of 8.9, compared with an expectation of only 3.4 cases.

Among the 954 relatives of the male patients there were 3 cases of manic-depressive psychoses, and an anticipation of 1.1, a total of 4.1 cases, compared with an expectation of 6.7. Among the 109 brothers of the patients there were no manic-depressive psychoses, and an anticipation of only 0.3, compared with a complete expectation of 0.5. Among the 139 sisters of the patients, the actual plus anticipated cases totaled 2.2, compared with a complete expectation of 1.3.

Among the 1,423 relatives of the female patients with adequate histories, there were 14 cases of manic-depressive psychoses, with a further anticipation of 3.0 cases, a total of 17.0, compared with an expectation of only 9.9 cases. Among the 260 brothers, there were 3 such cases, with an anticipation of 0.7 cases, a total of 3.7, compared with an expectation of only 1.3 cases. Among the 237 sisters

there were 5 cases of manic-depressive psychoses, with an anticipation of 1.7 additional cases, a total of 6.7, compared with a complete expectation of only 2.1 cases.

SUMMARY

Considering the incidence of mental diseases in the families of the 155 probands, we find a 'corrected' total of 92.7 cases, compared with an expectation of 89.2 cases. Such a divergence cannot be regarded as significant, but consideration must be given to the fact that the histories are based upon several degrees of relationship, including parents, grandparents, uncles and aunts. In almost all of these groups the expected cases exceed those actually reported. We cannot overlook the bias introduced by the presence of incomplete or inadequate histories in many of these relatives. The statistical results for the siblings are therefore of greater significance, and among them we do find a marked excess in the 'corrected' total of cases of mental disease over the expected total.

There are important differences in the relative frequencies of mental disease occurring among the relatives of the male and female probands. The relatives of the 60 male probands show only 31.3 cases of mental disease, as compared with an expectation of 35.9 cases. The cases among both male and female siblings however, show a significant excess over expected results. The relatives of the 95 female probands show 62.6 cases of mental disease, as compared with an expectation of 53.6 cases.

In the families of the female probands the evidence clearly indicates a relatively greater prevalence of mental diseases than is found in the general population, the result being especially clear in the case of the siblings. Also among the siblings of the male probands we find an excess in the incidence of mental disease. It appears a reasonable conclusion from such data that the family stock of patients with manic-depressive psychoses has a greater expectation of mental disease than is found in the general population.

Attention has been directed to the fact that the relatives of the female probands show a relatively higher incidence of mental diseases than do the relatives of the male probands. It also appears important to note that in both groups of families, the female sib-

lings have relatively higher rates of mental disease than the male siblings. There is thus a hierarchy. The lowest incidence is found among the male siblings of the male probands, the highest among the female siblings of the female probands.

It further appears that the rate of incidence of manic-depressive psychoses found among the relatives of the patients studied is considerably higher than the expected rate, the excess being greatest among the female siblings of the female probands.

These statistical results give rise to the consideration of essential differences in the transmission of mental disorders in the families of patients with manic-depressive psychoses. Part of the numerical excess among females may be expected in view of the fact that manic-depressive disorders are more prevalent among females than males. But this cannot account for the relatively greater prevalence of mental disorders among relatives of female probands. Nor does it explain the excess of such disorders among the female siblings of female probands over those of female siblings of male probands.

It appears, therefore, that the sex element enters into the transmission of manic-depressive psychoses, though the precise manner of this transmission or sex linking is not yet understood.

REFERENCES

1. See Forty-fourth Annual Report of the New York State Department of Mental Hygiene, p. 173.
2. *Ibid.*, pp. 190 and 255.
3. See discussion in *PSYCHIATRIC QUARTERLY*, Vol. 7, No. 3, pp. 463-472.
4. *Ibid.*, pp. 475-477.
5. See Luxenburger, Hans. Demographische und psychiatrische Untersuchungen in der engeren biologischen Familie von Paralytikerehegatten. In *Zeitschrift für die Gesamte Neurologie und Psychiatrie*. 1928, Band 112.
6. See Brugger, Carl. Zur Frage einer Belastungsstatistik der Durchschnittsbevölkerung. In *Zeitschrift für die Gesamte Neurologie und Psychiatrie*. 1929. Band 118.
7. Schulz, Bruno. Über die hereditären Beziehungen der Hirnarteriosklerose. In *Zeitschrift für die Gesamte Neurologie und Psychiatrie*. 1929. Band 120.
8. See Luxenburger, Hans. *Ibid.*, p. 333, and Rüdin, E. Neuere psychiatrisch-genealogische Untersuchungen, u. s. w. *Zentralblatt* 29, pp. 172-176.
9. See discussion in *PSYCHIATRIC QUARTERLY*, Vol. 7, No. 3, p. 474.
10. Sünner, Paul. Die psychoneurotische erbliche Belastung bei dem manisch-depressiven Irresein, u. s. w. In *Zeitschrift für die Gesamte Neurologie und Psychiatrie*. 1922, Band 77.
11. Wagner von Jauregg. Über erbliche Belastung. In *Wiener klinische Wochenschrift*. Oct. 30, 1902, p. 1159.
12. Expectation of Mental Disease by Horatio M. Pollock and Benjamin Malzberg. In *PSYCHIATRIC QUARTERLY*, Vol. 2, No. 1, pp. 549-579.

MENTAL MECHANISMS IN DEPRESSION*

BY JOSEPH R. BLALOCK, M. D.,

SENIOR PHYSICIAN, PSYCHIATRIST, NEW YORK STATE PSYCHIATRIC INSTITUTE
AND HOSPITAL

The study of individuals who are communicative offers a unique opportunity to obtain an insight into the psychological mechanisms in the depressions. The psychoanalytic theory of depressions was developed first by Freud¹ and Abraham,² and later these two have been joined by Rado,³ Alexander⁴ and others. Their work has been based on detailed experience with clinical material. The approach of each has been made from a somewhat different angle. Freud's approach was chiefly from the standpoint of the constitution and functions of the ego. Abraham was primarily interested in the development of the libido, particularly with reference to the pre-genital stages.

This contribution centers about a case which will illustrate and serve to clarify the more striking phenomena to be observed in this disorder. The facts have been obtained from direct interviews with the patient and from his wife. The talks with the patient have been on a conscious level and the material has been obtained without the use of psychoanalytic technique.

The patient is a male, an Irish Catholic, an insurance salesman, aged 38, who became mildly depressed in the spring of 1931 and markedly depressed nearly one year later. His life may be divided into a period of apparent health and a period of depression. This division is of value because, as will become apparent, he has since childhood exhibited the traits of the obsessional character, a man who by the utilization of these character traits made a superficially satisfactory social adjustment. He reached the age of 36 in this state of uncertain adjustment, and when, two years ago, he became a father, and the withdrawal of much needed love from his love objects occurred, he gradually gave up all his interests, in family and work, and gradually entered into a state of depression.

*This paper comprised part of a symposium on the manic-depressive psychosis, held at the New York State Psychiatric Institute and Hospital, April 19, 1933, and at the Utica State Hospital, April 26, 1933.

From the clinical department of the New York State Psychiatric Institute and Hospital.

The main events of his life may be very briefly sketched. He was born in a country village and was the youngest of 12 siblings. The family moved to New York City when he was six years old and his father died two years later. He was raised in a highly religious Catholic family. The mother was a kindly person who tended to spoil him during his infancy and childhood. Masturbation commenced at the age of five and continued for 12 years. He completed high school at 19 and worked for 11 years soliciting subscriptions to a Catholic periodical. He met his future wife when he was 23 and married her five years later. The first child, a daughter, was born when he was 31. His mother died when he was 33. Two years ago, when he was 36, his mother-in-law died, his wife was again pregnant, his daughter developed scarlet fever, and his depression began to manifest itself.

The foundation was laid in the nursery for the strong dependence he has had for love all his life. His first memory is that he was being rocked in his mother's arms and he said that he had never since felt so contented. When the family moved to New York in his sixth year he experienced what might be termed a childhood depression. Concerning his feelings at that time he says "I had a kind of lost sort of feeling, I couldn't understand why we had left. I missed running around so freely, missed talking to people, and seeing the horses." This demonstrates his attachment to his early environment. The father became confined to the home with rheumatism for one year prior to his death. The patient recalls overhearing quarrels between the parents which occurred before he was seven years old and that during these he felt quite uneasy.

The two oldest brothers served as father substitutes. There was a definite attachment to another brother who was 10 years older, and who was delicate, hypochondriacal, emotional, and very conscientious like the father. There was an aggressive brother 16 years older than the patient toward whom the patient became quite hostile after the age of 10. A sister, who is 15 years older, has all his life remained his favorite. He has spent his vacations since adolescence in her home, and in his present illness he spent seven months there.

As a child he made strong bids for his mother's attention, deriv-

ing unusual gratification, when he was ill, for he would demand and receive a great deal of nursing care. When he was four and one-half years old his mother gave him his only whipping at her hands for repeating some words he had overheard having to do with intercourse. He began to masturbate at about this time. The absence of the father from the home between his fifth and sixth years led to a closer association with the mother. In New York, after his sixth year, his father was again with the family.

Masturbation was practiced from the age of 7 to the age of 16 in the company of other boys, at first, older ones. Overt homosexuality was practiced in the form of mutual masturbation and competitive masturbation. There were also some mutual masturbatory experiences with a female cousin. At the age of 23 he spent a year in the navy. His chief worry during this year was due to the fact that he had to arrest men. A great number of arrests were for pederasty. He became quite suspicious saying that every one in the intelligence service seemed to be shadowing everyone else. Yet occasionally he would arrest a suspicious looking character with no qualms. These facts suggest that the patient had a strong latent homosexuality which was presumably subjected to strong repression after the age of 16.

The patient served as an altar boy between the ages of 9 and 16, developing a pleasing tenor voice. He has all his life maintained a preference for songs about mother. He completed grammar school at the age of 14 and worked for the next two years. He was unhappy because of the supervision and attended high school between the ages of 16 and 19. It was during this period that he would not remain in the same house with a brother whom he disliked. (Marked ambivalency, hostile to real, amiable to religious brothers.)

When he was 16 a serious accident occurred. Some gasoline ignited. His oldest sister was fatally burned and at the same time his mother was so severely burned that she required four years hospitalization. As a result she remained an invalid until her death 17 years later. To the patient her invalidism meant that he was forced to give up all hope of a college education, the priesthood, and that he could not even finish high school. Also, as others

left the home, he was eventually left alone to care for his mother. Her invalidism also meant that the bond between them continued unusually strong, yet he resented her in that she was dependent on him.

Shortly after his mother's return home he met a nurse six years his senior. It was a case of "love at first sight" and they became quickly engaged. Two months after meeting, sexual relations were regularly indulged in, with a decreasing frequency however until their marriage six years later. The accompanying sense of guilt was enormous.

The patient reactivated the Edipus situation here very plainly. He was immediately impressed, on meeting this nurse, that she was staunch and efficient, the traits that were lacking in his mother the invalid but which were present in the "wonderful mother" of his childhood. The mother-in-law however also shared in the role of mother imago. She lived with the patient and his wife from the time of their marriage. She made a great deal of him, advising him, doing many small favors for him, tending in a very tactful way to take his side when arguments arose between him and his wife. So in his own household he continued to be waited upon. When he became ill he was much more ill than the physical problem necessitated, demanding much care, as he had done in his childhood. He avoided remaining away from home overnight. For example he refused to attend the usual business meetings which were at a distance.

At the age of 30, when supervision became more strict in his work of soliciting magazine subscriptions, he gave up this type of work and began to sell life insurance. He limited himself to selling small policies to female domestic help and to housewives and was one of the best salesmen in the company. He was considered the strongest man physically in the office, and would fight the battles of the other men. He was the only one of the agents who would walk up and confront the "boss" when some injustice seemed to have been done as in the matter of money. He would walk boldly into the office, pound his fist on the table, becoming quite angry and excited, in demanding fair play. In a few moments he would feel uneasy, then return apologetically and make peace. If the "boss" were not

still there he would feel quite miserable. So we see here his strong ambivalence to authority, and his strong aggression, but an aggressive attitude that he was unable to maintain. His job amounted actually to threatening female help and housewives that they would die. He would in a very protective manner insist on the danger of their death and that he would save them. After selling a policy he would congratulate the woman by putting his arms around her and kissing her. He avoided any further manifestations of intimacy. These expressions were followed by an extreme sense of guilt and of infidelity.

When his mother died five years ago he did not seem greatly upset, for, as he said, his mother had been expected to die many times. The first child, a girl, was born when he was 31, seven years ago. His wife experienced a difficult first labor and he was afraid that if she became pregnant again she would die. His attitude was always an oversolicitous one toward the child especially if she were ill. At the same time he has felt jealous because she robbed him of much of his wife's attention. He developed simple reactions to situations. He has not formed sublimations, but his character has been based upon reaction formation. For example, his fear of his child's and wife's death is a type of reaction formation. His wife has maintained a rather aggressive domineering attitude toward him and he was subject to flare-ups of temper, quickly followed by contrition and remorse, which represents an ambivalent attitude.

His wife's sexual drive was not strong. After the first child's birth withdrawal was practiced. On account of his religion, as he explained, he would not use contraceptives. When he was granted permission to do so by one priest he would visit another until he was told that he should not use them.

This brings up the question of the development and strength of the superego in the depressions. Superego here is understood to mean "inner conscience." It is obvious that our patient has had a strong relentless superego. Ordinarily the superego begins to develop in that period of life in which the individual has to meet the demands of the nursery and sphincter training. At this age he is forced to give up certain pleasurable oral, anal, and urethral acts.

Our patient cannot recall the early phases of this period, but he recalls how at five and six when under emotional tension he would wet and soil himself. These accidents he was afraid to disclose because of the scoldings and attitudes of his parents.

The parental attitudes are incorporated, or taken into the structure of the ego, and the superego, or inner conscience is developed. This began quite early, by three years of age, and in our case the rigidity and religious background of his elders favored the development of a strict superego. The superego of the depressed is quite severe, quite sadistic. The reason may be because the infantile reaction to a prohibition and therefore loss of love is hate. The hate soon cannot be directed toward a parent or near-parent. When the prohibitions are set up in the form of the superego, the child avoids the issue by identifying himself with the parent and then his conscience can issue injunctions to himself. He is then able to criticize himself and appease his own unconscious sense of guilt by atonement or punishment.

The severity of the superego ordinarily becomes lessened and the ego becomes stronger as the person's libido becomes directed more and more away from the family circle. The conscience in this period of early childhood is poorly adapted to meet adult needs, the ego utilizes repression, inhibition, and regressive measures. It is felt in this case, that the ego failed to supplant the superego in the usual healthy manner, that the superego remained overstrict, and retained to a large extent its earlier sadistic character. The ego has remained essentially weak, and conditioned to expect much punishment.

Our patient remained very highly religious, attending mass, praying, and attending confession regularly. The confessions to his priest served as attempts to ease the need for punishment. It was a step away from the father situation, and also an attempt to replace the inner condemning function with an external person. But the priest would invariably firmly denunciate masturbation, thoughts of immorality, infidelity and other sins. Only after the patient became ill did the priest say "I did not know you took what I said so seriously." In this punishment the patient gratified

the masochistic ego, and reinforced the infantile sadistic character of the superego.

He did not objectivate his libidinal tendencies save in the restricted symbolic ways mentioned in the foregoing. This means that he failed also to develop an ego ideal that had extra-familial significance. The dominance of his early family training (the superego) was enhanced by the familial representations in the later environment (religion, marriage, and his occupation). In marriage there was a recapitulation of his own early life, for he married a woman of distinct maternal cast, molded after the pattern of his mother.

The paroxysm of rage in the hungry infant is the earliest forms of aggressive reaction to frustration (shown in biting, devouring, striking, destroying). With the formation of the superego the sexual impulses are repressed. The aggressive impulses remain conscious, but because of the attitudes of those who train the child they are inhibited with varying success. The aggressiveness in our patient began to manifest itself before the age of 10 as mischievousness, pranks, and teasing. In fact he was considered somewhat of a problem child. This aggression was chiefly sublimated in his play activities and later in his work. In his adolescence when he played baseball he was always disputing the umpire's decision and was involved in many fights. Other examples of his aggressiveness have been cited which show how his strong sadism and aggression have been manifested in adult life.

In childhood his instinctive tendencies had to be strongly repressed because of the attitude of his elders and because of a strict superego. These tendencies were predominantly oral and anal. The anal tendencies have been marked. In childhood he loved to play in the dirt. At school he would wet and soil himself in moments of anxiety. Since the age of four or five at the latest he has been afraid to sit on strange toilets lest a rat or snake come up from the sewer and enter his rectum. He fears getting infection from strange toilet seats. A morning routine has been to awaken, to have a desire to defecate and to be unable to do so. He would then have a mild headache increasing to severity by night at which time he would sit down on the toilet, light a cigarette, and with a

feeling of pleasure, empty his bowels. He then would feel depressed for 10 or 15 minutes. He would only smoke during this bowel regime, and at no other time.

Abraham² was impressed by the fact that depressed psychoses and compulsion neuroses have certain features in common; these are a marked ambivalence toward objects, and an over-strong, repressed sadistic component of the libido. He concluded that the conflict in the potential depression was the result of an attitude in the libido in which hate had become too predominant, in consequence of which the patient's capacity to love was seriously impaired.

Rado³ stated that "one subject all his life to melancholia because of the marked ambivalence of his instinctual disposition, tended, particularly in difficult situations, to utilize his infantile duplicating mode of thinking, tending to withdraw completely from the light or dark side of the object," that is, when hostile feelings are aroused, all love or tenderness is for the time being absent, and vice versa.

The series of emotional crises and events will next be discussed which combined to precipitate a psychotic depression in a previously mildly neurotic individual. With the facts so far presented the patient is considered as a man who was not really well adjusted mentally. He was managing to maintain approximate mental health and social adjustment in a very favorable situation which he had organized for himself. His neurotic traits had manifested themselves in the manner of the obsessional character. These traits were superstitiousness, worry, anxiety, phobias, prudishness, overconscientiousness, a strong morality, excessive interest in self, hypochondria and certain set ways of doing things. By these traits he had made peace with his instinctual tendencies. In a little more intense form, he might have shown more symptoms of the obsessional or compulsion neurosis. He had weakly attained an adult genital level and had many strong anal and oral traits. The fixations seem to have been preponderantly at the level of anal erotism while evidence of oral erotism was less vividly present. Adult genital type of behavior was meagre and insecure.

His libido two years ago, just before the onset of depression, was

directed chiefly toward his wife, his mother-in-law, his daughter, one of his sisters, and toward his work. A large share of this libido also was directed toward his own person. This type of individual is not able to convert much of his libido into object relationships of a substantial sublimated character.

Certain incidents began two years ago which induced rather gradually the depression, a depression which has since varied in its intensity.

In November, 1930, his wife was again pregnant. She became rather irritable. The first child developed scarlet fever in that month, was ill for three weeks, and remained delicate. The patient was oversolicitous, calling to inquire about the child's health from the office many times a day. His mother-in-law developed pneumonia at the same time, and died in February of 1931. So one sees a distinct change in the patient's important position in the household. He became even during this period rather irritable, moody, gave up his social activities, and was more seclusive.

Shortly before the mother-in-law's death he was asked to change her position in bed. To do so it was necessary to lift her by the buttocks. He seemed to demur rather prudishly whereupon she said "Be a martyr, don't be a cad." He sometimes uses the word "cad," sometimes "cur" in telling of the incident. This was a favorite expression of her's, and after her death, he in his superstitious fashion attributed unusual significance to it, feeling that one before death has prophetic vision. She meant to his own mind that he *was* a cur. This opinion of her's has been accepted and taken in by his superego, so that in his depression it is used to torment and punish himself. His conscience, not his loved mother-in-law, now says "You are no good. You are a cur."

This point might serve to emphasize that the ego of such a patient is not strong. He has retained the overly strict infantile superego and his ego has remained weak. There is a threat of loss of love when the love object shows aggression or hostility, as the pregnant wife did, particularly after her mother's death in that February. The reaction of the patient was one of hostility and aggression. During the remainder of the wife's pregnancy, until her delivery on August 16, she states that she was a difficult person

to live with. During this period it was necessary for the patient to do much of the housework, and to take care of the financial running of the household for the first time. This was out of character for him, since he had been waited upon and never offered to help at home. He was forced to play the role of the housewife. He objected and was rebellious.

The death of his mother-in-law was a blow. His depression increased. It seems, however, that the demands of reality, that is, the care of his wife and child, were the factors which kept him from really giving up his loved object relationships and becoming deeply depressed, as he did later in May, 1932. Another part of his libido was turned outwardly in the form of aggression toward his wife.

Following the wife's delivery in mid-August, 1931, he seemed better. His previous worry over the outcome of the pregnancy was no longer evident. His wife became less aggressive, was easier to get along with, and relieved him of his household duties.

He was not well however. His wife's time was more occupied now that there was another baby. There was no mother-in-law. His thoughts toward his first daughter bothered him because of jealousy and because they were often of a sexual nature. He continued variably depressed, nevertheless carrying on his work until the following February, 1932, one year following his mother-in-law's death, and six months following the baby's birth. At this time he developed a very trivial cold. Minor injuries and minor infections, particularly influenza, seem to precede many depressions. In other words, a narcissistic regression occurs, the individual becomes more self-centered, more selfish, aggressive, and less closely attached to others. There then followed a period of marked hypochondriasis. His complaints followed a regressive course. He first thought that he had tuberculosis, then syphilis. This was followed by fear of heart trouble, then worry about polyuria with fear of nephritis, and finally in the summer he thought that he had prostatitis and received prostatic massage. What he did was to eventually put the fear into the genital zone, which was relieved by a father substitute, a male physician. Poor appetite and constipation have remained present. In depressions a preoccupation concerning the lower bowel nearly always occurs.

In May, 1932, he became quite depressed. He gave up his work altogether. He has since shown no interest in his wife, daughters, work, or friends. Though his family has been with him much of the time he has shown no interest in them, rarely speaking to them. The depth of his depression has varied somewhat, but throughout he can be said to have given up all his relationships to his loved objects. His symptoms have been dejection, crying spells, hypochondria, poor appetite, constipation, absence of sexual desire, wish to die, self-depreciation, feelings of having sinned and of unworthiness. He has had various recurrent thoughts to the effect that his daughter was not his daughter, that his wife was unfaithful to him, fear that his wife and children were ill, and that he would not see them again. Rarely he has spoken of a wish to have sexual relations with his daughter. Recently on being asked "what are your symptoms," he said "an absolute hopelessness, I feel submerged. I can't think of ever getting better. I am continually looking for someone to reassure me. The whole world seems sinful. I feel that something has happened to my family and they won't tell me lest it upset me." Such thoughts and statements were infrequently expressed and comprised only a small part of the whole picture. Concerning his mother-in-law he said: "I've often wished she were alive because I loved her so. She was so nice to have around the house." Again "The house is so lonesome without her."

There were certain acts on his part (such as leaving his home and work, going to live with his sister, and subsequent movements which kept him from his family and work) which seemed rather definitely to point to an unconscious wish to sever his previous object relationships. This was further demonstrated by the attitude he assumed toward their illnesses, namely his certainty that they would die. This belief was held even when the illness was of a minor character. Because he believed that the illness could only culminate in death of the loved one he developed intense anxiety and depression. Associated with the anxiety was an equally severe sense of guilt. He then developed the idea that he was afflicted with incurable ailments which would lead to his death. These ailments first appeared in various parts of the body but were finally localized in the genital zone. The sequence of events therefore was

as follows: intense love on a puerile basis, alleged loss of loved ones, anxiety, feelings of guilt, injury first in the form of syphilis and later in the form of injury to the genitals (cancer of the genitals).

The patient's attitude during most of his wife's pregnancy illustrates the initial rebellious reaction referred to by Rado.³ He says that these people react violently to any threat of loss of love, that there then occurs before acute depressions a period of arrogant and embittered rebellion which is quickly passed over; that aggression, hostility, or increased narcissism on the part of the loved object constitutes a threat of a loss of love.

It is obvious that in his depression the patient has given up his object attachments, and that he is working out the problem in his own psychic structure. His sadistic tendencies are no longer directed outwardly. The weak ego which was able to take care of them when they were directed outwardly can not do so when they are directed by the superego against the ego. When he was well a large share of the libido was utilized in object relationships. In other words, the superego was less powerful. In depressions the superego becomes omnipotent, inflicting severe punishment upon the ego. The sadism of the patient allies itself with his already strict introjected parental image, which is represented in the psychic system by the superego. Rado states that the feeling of guilt for aggression makes atonement or self-punishment necessary. The ego submits to the punishment of the superego, and the latter, reinforced by the patient's own sadism, is overly severe.

In summary certain facts may be re-stated for emphasis. The patient was strongly attached to his mother. He had a great need to be loved. He failed to resolve his Edipus situation, as shown in his marriage to a mother-substitute, and in his relationships to his sister, mother-in-law and daughter. Toward father-substitutes his attitude has been either quite aggressive or quite passive. In all relationships with his loved objects ambivalence has been strong. He has remained unusually narcissistic. His superego has been overly strong at the expense of his ego which has remained infantile and weak. He has remained fixed in the anal period, showing obsessional traits. In his depression he has regressed to the early

anal and late oral period. He became depressed when his loved objects became lost to him; when a mother surrogate died, and another, the wife, showed aggression toward him. He then gave up his loved objects and incorporated all the traits of his loved and hated objects, as he considered them in his childhood, into his psychic system.

It appears that the symptoms of the patients with a depression may be largely understood through a study of the movement of the libido. Whenever there is an undue fixation of libido (in this instance at the earliest Edipus level) there is a dearth of libido available for object love. This means that the individual is not capable of investing libido in objects that are far removed from the original love objects, namely from those in the family circle.

BIBLIOGRAPHY

1. Freud, S.: Mourning and Melancholia. *Collected Papers*, 1917, IV, pp. 152-170, Hogarth Press.
2. Abraham, K.: A Short Study of the Development of the Libido, Viewed in the Light of Mental Disorders, *Selected Papers on Psychoanalysis*, 1924, pp. 418-501, Hogarth Press.
3. Rado, S.: The Problem of Melancholia. *Internat. Jour. Psychoanal.*, 1928, IX, 420-438.
4. Alexander, F.: The Psychoanalysis of the Total Personality. *Mental and Nervous Disease Monograph Series*, No. 52.

TREND SITUATIONS IN MANIC-DEPRESSIVE PSYCHOSES AND THEIR INTERPRETATION

BY OSWALD H. BOLTZ, M. D.,
CLINICAL DIRECTOR, BINGHAMTON STATE HOSPITAL

In taking a bird's-eye-view over a long series of manic-depressive psychoses which have passed through the writer's hands within the past several years, he has been impressed by the uniform repetition of certain trend pictures. From this perspective, he will attempt to formulate certain common denominators which are found with great regularity in all these trend pictures. There are undoubtedly other trend situations which have not come under the writer's observation; but the cases to be described later seem to fit the type of dynamic pictures usually encountered.

The nature of the mental conflict to which these patients are as a rule subjected prior to the onset of the psychosis differs only in degree from what may be observed in the ordinary individual. And, in my experience, the ordinary individual's reactions to these mental conflicts may vary from the manic-depressive case only in degree. The conflicts themselves center mainly around love and hatred and their transmutations: sin, guilt, need for punishment, damnation, self-castigation, etc.

In the first series of cases, we will attempt to illustrate the role of erotic frustration in the etiology of the psychosis. It seems that the strangulation of Eros is a potent factor in the release of depression, hatred and "death wishes" of various types.

CASE I is a depression occurring in a 51-year-old female who at the age of 22 married a 42-year-old widower with 12 children. According to the records, this patient got along satisfactorily with her husband until about two years before her admission to the hospital when the husband became sick and was advised to take a position with less wages. From what follows, however, it will be seen that the patient was living an unsatisfactory married life almost from the start. At first the patient imagined that people were discussing her. Shortly thereafter, while automobiling with her husband, patient insisted that he drive further than he felt he could. He refused to do this, whereupon she drew a revolver and threatened to shoot him. The husband stopped the automobile and the patient fired at him, but the bullet went astray. On the following day she attempted suicide by drowning. The transformation of a destructive impulse originally directed externally into a self-destruction impulse is a common reaction in severe depressions. The patient was then placed in a sanitarium and later released to the care of her husband. Subsequently she again became depressed and bid farewell to all of her friends

stating that she was going to the Binghamton State Hospital. Then attacked her husband with a knife while he was dozing in an arm-chair. On admission she was depressed and claimed to hear voices telling her to attack her husband and then kill herself. She recalled the suicidal attempt; but there seemed to be a complete amnesia for the homicidal attack upon the husband. During an interview it was discovered that she had been frigid with her husband since the birth of a son three years after marriage. She stated that her husband did not treat her properly; that 20 years ago when he was drinking and neglecting her, she had intimate relations with another man on one occasion in order to spite her husband and that she still felt guilty and remorseful about it. She admitted that thoughts about being glad to be rid of her husband often entered consciousness; but at the same time she felt sorry for him—it was her duty to look after him since he was getting old and feeble.

This patient represents a very common type of depression occurring around the involution period in married women who have never really loved their husbands; women who have always been frigid with their husbands and whose psychosexual life has been subjected to chronic frustration who for various conventional reasons feel they must prolong a marital situation which from the start was apparently built upon an unsound basis. These psychosexually frustrated women when they reach the involution period seem to look back upon their previous life of emotional emptiness (due largely to their own inadequacies) and, as it were, appear to have some realization of the shallowness of the whole business. And from here there is only a step to such feelings as "What is the use of living?" "I might as well be dead," etc. It would appear that in persons who are chronically subjected to psychosexual frustration thoughts of death, destruction and feelings of depression enter the mind automatically. The writer has now and then observed severe depression occur in passionate married women who do not wish to have more children but for religious reasons have had to unduly inhibit their psychosexual life because they thought that the use of contraceptives was a crime.

CASE II, a woman aged 52, has had a number of manic and depressive reactions to a marital dissatisfaction which has extended over three decades. Her first attack of excitement occurred early in married life as far back as 1898 when she was two months pregnant. Destructiveness and excitement were the first symptoms noted. She destroyed various personal and household effects, and this destructiveness continued after she was admitted to the Binghamton State Hospital. After a short hospital residence she was discharged as recovered. On April 20, 1921, she was again admitted to the hospital. She was mildly depressed and very bitter toward her husband. She admitted having threatened to shoot him and expressed ideas about not being legally married to him.

This time she had almost turned the house up-side-down, as if she were about to do a thorough job of house-cleaning, and left everything in a disordered state. She refused to do any more cooking for her husband. She claimed that during the interval between the first and second admission she had had many mild attacks of depression and discouragement. There were also some vague complaints about her husband's sexual behavior toward her (see interview on subsequent admission), and suspicions of his fidelity toward her and the children's devotion toward their mother. In the hospital she displayed a flirtatious attitude toward the ward physicians. There were loud complaints about her husband treating her badly. Discharged as recovered in less than a year after admission.

The patient was readmitted again on August 23, 1928. She had once more destroyed things in the house. She claimed that she was only a boarder in her home. She wished to be called Cora A. (A. was a former sweetheart) and refused to respond unless so addressed. During an interview she said: "I married in haste and repented at leisure." She imagined she was married to A. When asked what brought A. to her mind, the following reply was elicited: "I love him. I have never entirely forgotten him It was by going through the marriage service with him a few days before I came to the hospital. Suppose I tell you a little secret? Well, S. B. (real husband's name) never had a legal right to order me about. We had a marriage ceremony but if we add a letter to the name B. it makes it null and void—I know the law of the land." When asked who is home now, patient replied: "My young son and C. A. A. (imagined husband), S. B. (real husband) passed away years ago I'm told." Patient again discharged recovered.

Readmitted to the hospital January 9, 1930, and was again destructive of household property and threatened members of her family; was loud in her complaints against the husband. She showed typical manic symptoms in the hospital. The son claimed that the patient is always hostile toward her husband when she develops a psychosis. During this admission the writer interviewed the patient shortly before leaving the hospital concerning her relationship with A. She gave a history of being in love with Mr. A. when she was a young woman. They had planned to get married; but due to the objections of his parents, marriage was never consummated. Shortly thereafter she hastily married Mr. B. She claimed that she was always greatly attached to A. and expressed the feeling that for many years she has been trying to make the best of a bad bargain by living with her husband. The husband according to patient's story has been suffering from weak potency for over 20 years and in the past two years it has vanished completely. She alleges that on several occasions he has wanted to perform coitus per anum. At the time of her discharge as recovered she frankly admitted not being at all in love with her husband and that her marriage to Mr. B. had been a total failure and a mistake; that she was much fonder of her former sweetheart A. She only married B. after realizing that marriage to A. was an impossibility. At the time of parole, she requested not to be allowed to return home to her husband and her wishes were complied with.

CASE III admitted sexual dissatisfaction with her husband after recovery from the psychosis; she was frigid with him at all times and the psychosis began a few months after the birth of her first child. This case shows what might be called an unconscious *attitude of rejection toward the new-born baby*. This mechanism is sometimes encountered following the birth of a child who is unconsciously not wanted. Patients of this

type display symptoms indicating unconscious "death wishes" toward the child and to these wishes they react with depression, guilt, self-punishment and suicide. Sometimes they actually attempt or succeed in murdering the child. Mrs. H. H. is a young woman who has been married for about 12 years. She claimed that she became disappointed with her husband about five years after marriage because he was not able to give her a child. During July, 1931, she gave birth to a son. The labor was difficult and instrumental. About November, 1931, she became depressed and "nervous about the baby." Whenever he was taken for an automobile ride, the patient worried about him having caught a cold. Then she began to imagine that something would happen to the child. When the baby was asleep, she imagined he was dying. Then she developed a notion that his head was too large and that he was losing weight although actually he was gaining. She became more depressed and in December, 1931, tried to cut her wrist with a knife. She became neglectful of the home and her personal appearance. She was subject to crying spells; placed lysol under her bed, and requested to be arrested and sent to jail because she had permitted the baby to fall from the crib. In the hospital she displayed typical depression and retardation. At times she had fantasies that her baby was actually dead and at other times that something had happened to it for which she would be arrested. The patient was subsequently released as much improved.

Now and then one encounters patients who are fixed at various levels of psychosexual development; who are conscious of their sexual peculiarities and after gratifying it for some time in reality suddenly feel that they have been doing something very wicked and renounce the particular sexual gratification entirely, whereupon there soon follows depression, ideas of death, guilt, need for punishment and suicidal tendencies. The writer has seen cases where an adjustment to these psychosexual peculiarities subsequently brought about recovery from the psychosis.

The next case might be taken as an illustration of this type of patient:

CASE IV was admitted to the hospital at the age of 31 on account of a suicidal attempt associated with depression, guilt, need for punishment and atonement. The patient was of a rather religious make-up and sang in a village choir. He had always been conscious of homosexual inclinations. Masturbation was practiced almost daily since puberty and during periods of sexual excitement he imagined that he was a woman. There have been five homosexual experiences in his life. The patient describes the onset of his psychosis in the following words: "The chief sin I committed was one of the imagination which led up to self-abuse. I have had an unnatural desire all my life; I did not allow it to effect me. I would practice masturbation and imagine myself another sex at the time with practically no effects until my breakdown. It came all at once. I woke up in the night and had terrible fear. I thought I had been delivered over to evil and saw things in the Psalms that applied to me. I had never been sick and never before had any fear of death. In the Psalms it says the ungodly go forward from both; they are not plagued like other men or fear death; they lie on their beds and practice mischief

and this they keep to themselves. God shall send Satan to stand before them and they shall suddenly fear where there has been no fear. I never thought of getting married and that is the reason I think I became melancholy. I thought I had nothing to live for; then the climax came. I thought I had been impenitent and would go to hell. I picked up a book and read about despair being the death of any soul. Everything I heard in church was a thorn in my conscience. I applied everything I read in the Scriptures and Psalms to myself. I thought I would be killed. I was afraid of getting into an accident everytime I went out. I was just frozen with fear. I was afraid things would happen at home, and the whole family would die. I looked upon the whole thing as a punishment. I had sexual relations with another boy; became very remorseful about it and turned to religion. In a fit of despondency I tried to kill myself. I was unable to work and read the Bible constantly. I thought I would be left "desolate" and come to some fearful end. I imagined the boy's father would have me arrested and sent to Auburn prison. I was afraid of the exposure of myself and the boy." The patient felt that through his mental illness he had been able to atone for his sins; that it was a form of punishment and that he literally had gone through hell. The patient made an uneventful recovery and left the hospital in a well-adjusted state.

The next two cases represent wish-fulfilling manic attacks following erotic frustration with regression to the Oedipus situation:

CASE V was admitted to the hospital at the age of 23. She was the youngest of five children. The personality make-up was typically extravert. A change was noticed in the patient's behavior about six days prior to admission. She began singing in an unnatural voice and switched from one song to another. Repeatedly said, "I have a square chin; I can take it." She imagined her sister and brothers were half-sister and brothers; stood in the doorway and asked her father where he was going; then said to him, "I want you to get a minister and get married before you leave here, why not tell me I'm an illegitimate child." In the hospital she had a typical manic attack. She imagined that she had been married for six years and had a child; admitted to the writer that she had had fantasies of being married to her father. She spoke at length concerning her difficulties with her step-mother. The psychosis was of acute onset about two weeks after terminating a love affair. For three months she had been keeping company with a young man and experienced satisfactory sex relations. According to patient's story, this man had proposed to her but she refused to marry him on account of his jealousy of her; his alcoholic habits and his inability to support her. The patient broke up the affair and refused to see the man any more. About two weeks later the above psychosis began with regression to the Oedipus situation in which there were fantasies of being married to the father and having a child by him. She made a complete recovery from the psychosis.

The following patient also illustrates a wish-fulfilling manic attack with probable regression to the Oedipus conflict following libidinous frustration.

CASE VI was admitted to the hospital in a manic attack. Age 35 years old. Rural school teacher. Always much attached to her father; this had considerable influence in keeping her in a small town near her aged father. She was of a jovial disposition, fairly

sociable and very fond of her sister. About three months before admission she suffered from an attack of chronic appendicitis for which she was being treated by the old family physician, Dr. B., a man about 60 years old. About two weeks before admission she began to tell members of her family that she was in love with Dr. B. When her brother was passing her house, she went out and stopped him so that she could inform him of her coming marriage to Dr. B. within a year. That same day she went to her father's home saying that she wanted to visit him because the Lord had told her that he was about to die. The patient talked constantly about Dr. B. and seemed very happy over the fancied prospects of marrying him. At times depressive trends broke through when she cried and thought she was going to die; that the world was going to be blown to pieces because of the evil people in it. In the hospital elation oscillated with restless, agitated phases during which she wept copiously. She began to improve about two weeks after admission and gave the following information. She began masturbation in early childhood and continued this practice until puberty. There was no worry associated with this habit. At 16 she met a young man about her own age. They went together for about two years and the patient expected to marry him. Rather suddenly, however, the suitor diverted his interests to another girl who had money and social position. The patient felt jilted and very bitter. There were no intimate relations. About a year after the termination of this affair, she became intensely attached to a 30-year-old married farmer with two children. The physical attraction was great and she readily consented to sexual relations. They had intercourse at intervals for over a period of 12 years. The patient insists that she was as much the aggressor as the man from the beginning to the end of this affair. She constantly reproached herself for allowing the affair to continue, because of the two children and the fact that she was well acquainted with his wife and respected her. She was often disturbed by thoughts of possible discovery and pregnancy; they practiced coitus interruptus. Discovery would probably have meant the breaking up of a family. She at no time entertained the thought of breaking up the family in order to marry the man herself. The self-reproach became so marked that she finally terminated the affair when she was about 30 years old. For a time she was very lonesome and gratified her passions with masturbation. Whereas previously this habit had not bothered her, she now reproached herself a good deal on this score. For the past two years, however, she has been able to control herself in this respect. When she went to Dr. B., for treatment of the chronic appendicitis, he was inclined to display fatherly affection and massaged the region of her right lower quadrant. She had known Dr. B. since childhood. As time went on she became convinced that she loved him. There was considerable conflict over the thought that she could not be happy with this man if she did not tell him of her intimate relations with the married farmer; this seemed an almost impossible task, because on the one hand such an admission would be a breach of faith with the man who she still regarded highly, and on the other, there was a possibility that such a disclosure would completely disillusion the doctor and her chances of marrying him would be ruined. The patient admitted that the doctor's advances were mild and that he had never declared his intentions. However, his affectionate attitude and caresses were interpreted by the patient to mean that it would be possible to induce him to consider marriage. During the first weeks preceding the onset of the psychosis, she was thinking a great deal about her previous love affair and of what she considered her dreadfully sinful life which she had persisted in and which was now, through her own conscience, stepping in to end

her prospective happiness. These thoughts greatly upset her and she occasionally felt that suicide would be a way out. There were ideas that the terrible sins of this world could only be atoned for by its complete destruction. As she continued to get more upset, Dr. B. was called to see her professionally. At this visit instead of embraces which she had previously experienced, the doctor was quite cool in his manner and made it obvious that he did not wish their relationship to be known to her family; this conviction was a very crushing thought to the patient. She made a complete recovery with insight.

In the following group of cases, a sadistic impulse symptomatically expends itself upon the patient, who in a sense becomes the object of his own sadistic strivings. This type of patient displays a strong "need for punishment," and unconsciously tends to place himself in situations where he will be the recipient of pain, injury, punishment, guilt or death.

CASE VII was admitted to the hospital as a case of involution melancholia. He was 60 years old. His father was alcoholic, irritable, very strict and domineering. As a youth, the patient had to support his mother and her seven children. He called himself a pessimist and a pacifist. The following defense reaction manifested in youth indicates latent sadism. He could never prevail upon himself to chop off a chicken's head; the feeling of sympathy was too great. In this connection it is interesting to note that, according to Krafft-Ebing, Dinitri, son of Ivan the Cruel, derived unspeakable pleasure when witnessing the death struggles of sheep, chickens and geese. Lombroso describes two men who had seminal emissions when they killed chickens or pigeons or wrung their necks. Krafft-Ebing comments that "in these and similar cases the *vita sexualis* is so constituted that the sight of blood, death, etc., excites lascivious feeling." Our patient was described as a good husband, sociable and fond of his children. For several years before admission he claims not to have experienced any sexual desire and he and his wife occupied separate rooms. About four months prior to admission he became depressed, lost interest, gave up work, and said he wanted to die; that life was not worth living. He claimed that his bowels had stopped moving entirely (constipation a common symptom in severe depressions). He insisted upon being taken to Bellevue Hospital where he said: "I can't walk, talk, think or see; the sooner I die the better. I don't think I will live 24 hours." The patient imagined that his feet were gangrenous and that his wife and daughter were going to die. He experienced many sado-masochistic hallucinations and delusions. Voices threatened to lynch him, murder him; each day he insisted that he was about to be murdered despite vigorous assurance to the contrary. A voice accused him of being a murderer. He imagined that he was going to be placed in the basement and hanged. He said: "I can neither laugh nor cry. My head feels as if it were in a tight band. They are going to kill me all right. I am going to be chopped up and my remains cast into the river." The patient later refused food and became so emaciated that he finally died.

CASE VIII displays unconscious feelings of guilt and a self-imposed need for punishment. It also represents a curious medico-legal situation. He was a young iron-worker. There has never been any interest in the opposite sex. Two weeks prior to

admission to the hospital he became depressed for no apparent reason, and went to the office of the district attorney of New York City and accused himself of murdering Rothstein, the gambler. He then talked about killing himself. At the Bellevue psychopathic department he said: "I just went to the district attorney's office and said I committed murder If I can get instant death that's all right I'm willing to die for anyone else They can give me the chair I imagine they want to make me suffer." He admitted attempting to kill himself by jumping in front of a moving trolley car; but was prevented from doing this by a friend. The patient made a rapid recovery from the psychosis and had insight.

The next case belongs to the same group:

CASE IX. Mr. X., 33 years old, earned a living as a seaman. As a boy he fainted on two occasions at the sight of blood; once when his nose bled and again when he cut his finger. The onset of the psychosis occurred while employed as a petty officer on an American steamship about five weeks before commitment. The first officer, who was a friend of the patient, was killed very suddenly when something went wrong with the gear of a hoisting apparatus. The skull was crushed and the brain exposed. The patient happened to be the first person to reach the injured man and held his head until the ship's surgeon arrived. Following this the patient felt normally depressed as might be expected upon the loss of a friend. Nothing abnormal was noticed until a week after the accident when the patient began to imagine that some of the other seamen accused him of being responsible for the first officer's death; that if he had not laid hands upon the man who was killed and held him until the surgeon came, his life might have been saved (death by magic). He stopped work and went home. He was very depressed; had frequent crying spells and imagined that he had had something to do with the first officer's death; that he had committed a sin by screwing down the cover of the box which contained the dead body. The ship's surgeon wrote a letter to the hospital in which he stated that the patient seemed normal mentally until the first officer was accidentally killed. The patient was then committed at Bellevue Hospital, having attempted to kill himself by drinking potassium permanganate. He claimed to be greatly depressed because his friends had accused him in the manner described above. When questioned about dreams, stated that he dreamt he was walking in a dark alley and his head was chopped off. On one occasion it was his duty to place some cats in a bag and throw them overboard. It was impossible for him to execute this task; so he managed to get someone else to do it for him. This patient also recovered from his psychosis.

The next case represents a type of patient who is occasionally encountered where it is very difficult to determine how much erotic frustration and how much frustration of certain egotistic strivings have to do with the development of the psychosis. Probably both factors are responsible. Egoistic frustrations such as loss of money, failure in attainment of ambitions, loss of prestige, lack of employment, frustrations in the attainment of power, poor health which tends to defeat impulsive desires, etc., certainly appear to be of great etiological importance in some cases and may lead to de-

pression or wish-fulfilling manic attacks in which the patient expresses various kinds of grandiose ideas centering around the attainment of great power, wealth, influence, big business, etc., etc. From his experience the writer has gained the impression that erotic frustrations may be compensated for, to some extent, by success in egoistic fields; that failure in egoistic fields may release symptoms indicating sexual regression.

CASE X is that of a painter, age 54. He is described as sociable, made friends easily, optimistic, "easy going," and never worried until he was unable to secure employment. The patient was always an excellent, reliable worker. For about a year before admission this patient worried about unemployment and five or six months prior to commitment gradually became more and more depressed. He talked almost continually about his failure to secure employment, and told his wife that the future looked dark; that there were no good prospects for them. That same day he told his wife that he had intended to kill himself with illuminating gas but thought of her and could not go through with it. The mental examination revealed that nearly all of the patient's productions centered around his unhappy financial situation. He stated that for the past three years he had been "blue" and "out of sorts" because he still owed money on his property, particularly during the past year when he was unable to obtain employment. His sexual potency has also been diminishing. Patient said: "Since my wife was operated for fibroids 15 years ago, her health was delicate and she would not permit me to have intercourse as often as I had wanted it. On a good many occasions I was not very well satisfied and thought sometimes of stepping out with 'hotter women.'" However, I never did yield to the impulse to be untrue. The past three years since I have been blue and brooding about money, I haven't been much interested in sex." When asked why at his age and with his good employment record he has been unable to save money, patient stated that his wife has been ill most of the time and required a number of surgical operations which gradually ate up all of his savings. At the age of 54, despite steady employment and care in the expenditure of his money, the patient is now practically penniless. His sexual life has been very unsatisfactory since the fibroid operation 15 years ago. He would not have intercourse with his wife very often for fear of injuring her which might mean another operation and further expense.

It might be added that this patient's depression was very mild compared with the previously described cases; there were no self-accusatory, guilt or other ideas commonly associated with depression elicited. This patient was obviously frustrated in the erotic field and subsequently suffered severe reverses in the realm of his egoistic strivings. It is not difficult to understand why this man should become tired of living and depressed over his future prospects.

CONCLUSIONS

1) Prolonged renunciation or frustration of Eros may in some individuals lead to attacks of depression, mania or mixed manic-depressive reactions.

2) Strangulation of Eros automatically releases death or destruction impulses.

3) Depression represents a tendency to negate life; it is a "*living-death*" or may actually lead to death itself.

4) The manic reaction in the manic-depressive psychosis represents an "as if," forced, artificial affirmation of life behind which lurks a strong death or destruction impulse.

5) In depression the death or destruction impulse is usually inhibited in its satisfaction upon an external object and becomes transformed into an impulse toward self-destruction.

THE FAMILY CONSTELLATION AS A PREDISPOSING FACTOR IN PSYCHOSIS*

BY SIEGFRIED E. KATZ, M. D.,

NEW YORK STATE PSYCHIATRIC INSTITUTE AND HOSPITAL

Considering the importance of the family constellation in the development of mental diseases, often little is available concerning the early life of psychotic patients. The most obvious reason is the difficulty of obtaining specific data. By the time an individual becomes a patient in an institution for mental diseases, his earliest family group has usually broken up or at least undergone radical change. To secure a correct picture from relatives is very difficult as it is more often than not colored by prejudice and inhibitions, if not by deliberate concealment of the most significant facts.

In this paper a comparative study has been made of a few easily ascertainable factors in the family group of a number of patients suffering from mental diseases, with the object of determining what correlation appears to exist between these factors and the incidence of the psychosis.

The sociological orientation of a functional psychosis may be stated as a cleavage of the interests of the individual from those of the social group, leading to a separation of the interests of the personality from the interests of the environment, in so far as those interests are socially useful.

There are different ways of meeting a situation with which a person is unable or unwilling to cope. One is despair—death. The second is acceptance of the inevitable. No more vivid example of solving a situation by this method could be found than that illustrated by the words of a character in fiction. The rugged philosopher in the story was made to say: "When I want something very bad, and I know I can't get it, I stop wanting it." Whatever psychological subtleties for the educator may be involved in such an admission of failure in early life, for the psychiatrist the wording on the sign post would be simple: "Along this road lies sanity." Another method is denial of the reality of the situation and the

*From the Department of Clinical Psychiatry, New York State Psychiatric Institute and Hospital. The data for this paper were gathered at the Hudson River State Hospital, 1929-1930, Dr. Clarence O. Cheney, superintendent.

substitution of phantasy, the psychosis, which affords a more comfortable lodging place for the afflicted ego.

In the development of every psychosis two factors play important parts; environmental and intrapsychic. With the second, this paper is not primarily concerned. This is, the investigation has been confined to a study of the environment during the earliest years of life, no attempt being made to study the psychic life of the child as shown by his reactions to his environment. That such psychic life is of paramount importance, is, however, a *sine qua non* of this study. Upon it depend the individual's adequacy or inadequacy to meet the demands of adult life. Psychic energy is not born, but acquired. A child may start life with a generous reserve of money to his credit in the bank. But the reserve fund of psychic energy upon which he must draw to meet all the demands of adult life must be acquired by himself through his own dealings in the market-place of life. His market-place is his environment, his gains and losses are the net result of his reactions to this environment, and the size of his account in his psychic bank is the measure of what he has been able to place on the credit side of his balance sheet. Of two infants who start life even as to such capital, one may reach adolescence with a large surplus upon which to draw and the other with a deficit.

As in physical growth, the earlier years are immeasurably more responsive to both favorable and unfavorable conditions than the later, so in psychic development. Starvation in infancy would be no more far-reaching in its effects on the physical well-being of an individual than would an environment that offered no fitting expression for his normal emotional and mental faculties, to his psychic life. Reaction to environment produces habit, and the habits established during the first years are the ones that will be used throughout life. The man who flies into a rage because his breakfast eggs are boiled too hard was probably an infant that kicked over his porridge because he preferred his sister's spoon to his own—and got it. The man who resigns from an organization when it fails to elect him president is the boy who refused to play the nursery games unless he could always be “it.” But these are the obvious cases. Could the story, from first cause to end result,

be traced in the case of any sufferer from dementia præcox, manic-depressive insanity, or paranoid, it would be long and tortuous and full of subtleties, beyond the imagination of any healthy-minded listener.

The first environment to which anyone must adjust, is the family. This is a rather complex unit, which cannot be fully analyzed. In theory, the tendency is to consider it a more standardized unit than in reality it is. From the two ends of the social scale, the public institution and the well-staffed nursery, is a far cry. But the distance between these two extremes is hardly greater than between either of them and the small, self-centered family—the “shut-in” or “ingrowing” family. Taking these extremes at the angles of a social triangle, all along the connecting lines are the variously sized and socially habituated families, with their equipment of nurses, relatives, neighbors—all of whom have to be reckoned with, in addition to the more immediate family circle in any comprehensive study of the family as environment. With due regard for these influences, one may ignore them for the time, extract certain of the more easily ascertainable factors in the family group and study these exclusively for the purpose in hand.

The factors dealt with in this paper are the size of the family, the birth sequence and sex of the siblings and the number of children in the family. The object of the study was to ascertain whether these factors had any perceptible influence in the molding of personality.

HOW THE MATERIAL WAS COLLECTED

The study was based upon the consecutive records of a State hospital which admits about 70 patients a month. These are drawn from both rural and urban populations, but not from a metropolitan center. No process of selection entered into the study, except in so far as some of the case histories were not complete, that is, did not designate the ages of the siblings. One hundred and ninety-four case histories were included. For the purpose of the study, these were divided according to diagnosis into only three groups: Dementia præcox and manic-depressive psychoses, each in a separate group, and all other psychoses, such as alcoholic, arteriosclero-

tic and senile states, organic brain diseases and general paralysis, in one group under the head of "others."

TABLE I. SIZE OF FAMILY

Psychosis	Total	Number of children										More than 10
		1	2	3	4	5	6	7	8	9	10	
Dementia præcox	83	3	2	6	15	11	15	9	10	4	5	3
Manic-depressive	19	0	1	6	2	4	2	0	3	0	1	0
Others	92	3	10	16	9	20	10	3	7	5	5	4
	194	6	13	28	26	35	27	12	20	9	11	7

The size of the families varied from 1 child to more than 10, far the larger proportion having from 3 to 6 children. One-child families were the least in number, only 6 patients out of 194 coming from such families. This is in direct contradiction to a theory often advanced, that the small family, is, in itself, favorable breeding ground for mental disease, and that the psychical development of an only child is at a particular disadvantage. Taking the three groups separately, a considerably smaller proportion of dementia præcox, subjects come from families of but 2 or 3 children than from the larger families of 4 and more children. In the other two groups, however, the difference is not as noticeable.

TABLE II. ORDER OF BIRTH OF PATIENT

Psychosis	Total	1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th	11th and over
Dementia præcox	83	12	12	11	18	13	11	1	2	2	1	0
Manic-depressive	19	2	6	6	3	1	0	1	0	0	0	0
Others	92	18	21	14	6	11	4	1	4	6	1	6
	194	32	39	31	27	25	15	3	6	8	2	6

This table shows no preference of the psychoses for the first child in a family. This also is at variance with a theory which has received consideration and even support. That the first child, or the only child, should have less normal soil for his psychical growth, due to over-concentration upon him of parental solicitude and the want of the background of childish interests and habits provided by

older brothers and sisters, seems a logical inference. However, out of 83 cases of dementia præcox, only 12 were first children; and of 19 cases of manic-depressive insanity, only 2; while 18 dementia præcox patients were 4th children and 6 manic-depressive patients were 3rd. Although a larger proportion of first children were found among the group of "others," this can not be regarded as significant, owing to the variety of diseases in this group.

TABLE III. SEX IN SIBLINGS

Psychoses	Total	Older		Younger	
		Brothers	Sisters	Brothers	Sisters
Dementia præcox:					
Male (57)	311	70	117	62	62
Female (26)	140	42	36	31	31
Manic-depressive:					
Male (7)	51	16	9	16	10
Female (12)	57	18	9	17	13
Others (92)	362	97	74	100	91
Total	921	243	245	226	270

Examination of the 57 case records of male dementia præcox shows a considerably larger number of older sisters than of older brothers in their families, 117 against 70. The younger brothers and sisters of these patients were evenly divided. In the 26 cases of female dementia præcox there was a preponderance of older brothers over sisters, but the difference was much smaller, only 42 to 36. Here again the younger brothers and sisters were even in number.

INTERPRETATION OF DATA

The marked preponderance of older sisters in the cases of male dementia præcox would suggest some correlation between the development of the disease and the part played by these sisters in the family environment of the siblings. Such preponderance is not found in any other group. In these families there was an average of a little more than two older sisters and only one and a half older brothers, which would suggest homes where the prevailing key of the nursery life and had been set to suit the feminine, rather

than the masculine, make-up of children. A child born into such a ready-made environment would, in most cases, have to make his adjustment to conditions as he found them. This adjustment, and its entailments, at his most plastic period, would to a large extent determine the direction of his psychic life. By the time the average child becomes a member of the second group to which he must adjust himself, the school, the style of his psychic life is so firmly fixed that any readjustment is more or less problematic.

The success of this second adjustment to a group will depend chiefly upon two factors: The degree to which readjustment is called for, and the amount of psychic energy which the child has in reserve to meet the call. Throughout life, a similar problem of readjustment to new environments will repeat itself. The same factors will play a dominant part in each new solution. There will, however, be constantly decreasing probability of any marked variation from the result of the child's first effort to alter his earliest psychic habits. If his readjustment to the school group from the nursery group was a success, his chance of success in meeting new situations later will be good. Repeated successes or failures finally become a fixed habit and are considered a part of the person's make-up, or his "character." When the habit is failure, the personality becomes badly integrated. He does not "get on" with other people, is "unpractical," or "maladjusted," or has not "found himself." Such success or failure in psychical life is not, of course, to be confused with success or failure in dealing with material matters.

In what way is such a lack of integration related to the preponderance of sisters in the family group? Four ways at once suggest themselves as having possibilities of adverse influence in the psychic life of a boy.

1. Coddling and over-protecting, with the result of producing a weakling, unable or unwilling to "buck-up" against difficult situations.
2. Adoration, and over-importance to the whims of the child, who grows up, only to learn that life holds few comfortable jobs for an ego which can not endure not holding the center of the stage.
3. The opposite of this, namely, over-domination and ignoring.

While a certain amount of ignoring is wholesome for a healthy child, when carried to an extreme it may breed feelings of inadequacy, particularly in a younger child who is constantly contrasted unfavorably with his elders.

4. The fourth way, the one with which this study is mainly concerned, is the danger of a male child developing through a predominantly feminine world, a too-feminine attitude toward life. However much feminists may insist upon the equal right of the sexes to attack life from all and the same angles, biologists and psychologists recognize certain psychical characteristics as essentially masculine or feminine. This is not to say that these characteristics belong exclusively to either sex. The difference is more a matter of quantity than of quality. The expressions "masculine woman" and "effeminate man" are generally familiar.

It is thought that the typical female lives more in fantasy than the typical male. Her actions, ambitions, thoughts are more largely governed by the pleasure principle than his: that is, by what she wants rather than what she has, by the world, as she would like it to be, rather than by the world as she finds it. In early childhood this tendency is seen in its purest form, before it has been shaped upon by life and the necessity of compromise with things as they are. "Girls are more imaginative than boys." Hence, a girl-ruled nursery would be one where fantasy was ever brooding—in a shadowy background, if not in the forefront of the small inmates' daily occupations and games.

From such a family group a girl of ordinary intelligence and habits goes out to meet, in her next social group, girls whose background has been similar to her own. Contacts with them require no more change in her mental habits than can be accomplished without strain. Having successfully made her first readjustment to life outside of the home, because her preparation for it was "natural," the hardest part of her battle for integration has been fought and the foundation of a habit of successful readjustment has been laid.

A boy arrives in the same nursery. What does he find? An atmosphere not favorable to the natural expression of his own play impulses. During his first years, while still in the nursery, the

conflict between himself and his environment begins. He must constantly reckon with the fantasy-filled world his older playmates have arranged, whereas, if he followed his own tendencies, his play would concern itself with imitation, competition, with doing things instead of imagining them. If he is not aware of his own instinct for objective play, the conflict is the more difficult, because it is in the dark.

From such a home he goes to meet his next social group in school but poorly fitted for the task of adjusting himself to its demands. Not only have his natural impulses been thwarted, but he has acquired psychical habits unlike those of his new playmates. Having been a misfit in a girls' nursery, he now becomes a misfit on a boys' playground. Happy, but rare, are the parents with the clear vision to face the problem at this stage.

While this study has dealt with only one of the many angles from which to estimate the influence of the family group upon a child in his earliest years, this factor seems well worth consideration in the bringing up of boys. Parents and nurses can hardly begin too soon to surround a child with the material for his psychical nourishment, as well as to help him form mental habits that will fit him to adjust readily to the next group of which he is to become a member. To do so is to provide him with the best immunity from that most painful and harmful form of self-consciousness; the feeling of being "different" from his playmates.

CONCLUSION

The figures shown by this study would appear to justify the following conclusions:

1. The size of the family does not appear to be correlated with the incidence of psychoses.
2. The order of birth of the siblings seems to bear no relation to the incidence of psychoses.
3. A preponderance of older sisters in the family is suggested as a predisposing factor in male dementia præcox.

A study of specific histories of the early life of male dementia præcox subjects would be of special interest in connection with these figures.

PRE-PSYCHOTIC PERSONALITY OF MANIC-DEPRESSIVE PATIENTS*

BY JOHN L. SMALLDON, M. D.,

SENIOR ASSISTANT PHYSICIAN, HUDSON RIVER STATE HOSPITAL, POUGHKEEPSIE, N. Y.

For this study, a group of 75 cases of manic-depressive psychosis, comprising 25 cases each of the manic, the depressed and the circular types, were selected. All have been under close observation and have been carefully studied throughout the major portion of at least one definite psychotic episode, which constituted such a clear-cut syndrome as to leave no doubt of the diagnosis. All of the cases selected were pure types, those with mixed features having been ruled out. Those cases in which there was a complicating physical factor that could be reasonably associated with the clinical syndrome were also discarded.

Aside from the points mentioned, the 75 cases were selected quite at random from the admissions to the Hudson River State Hospital in the years 1926 to 1932 inclusive, excepting the circular group in which a relative scarcity of material necessitated a search of earlier records.

No attempt was made to select cases by order of admission or by sex, it being purely accidental that the series closely approximates the statistical findings of manic-depressive psychosis, in which females predominate. Henderson and Gillespie¹ and Bleuler² give that predominance as 3 to 1 while Malzberg³ in a statistical survey of manic-depressive admissions to the New York State Hospitals found it to be 2 to 1. In the series under consideration at present, 51 cases are female and 24 male.

Information furnished by the patient was not accepted, that studied being the objective observations of fairly reliable parents, siblings, children, employers and others who had intimate knowledge of the patient's earlier life. Each individual's personality has been summarized and evaluated by a method following Kirby's⁴ personality outline as revised from that of Hoch and Amsden.⁵

The personality study has been described by Strecker⁶ as a condensed record of the individual's life-long reaction to his environment, personality being the crystallization of that constant inter-

*Read before the Interhospital Conference of the New York "Down-State" Hospitals, Psychiatric Institute and Hospital, New York, April 19, 1933.

play and contact. According to Healy,⁷ personality is "The individual's habitual attitudes, characteristics, and behavior tendencies." These together he regards as the total personality, including factors indiscernible to the objective observer and therefore impossible of complete study. On the other hand, that portion of the whole personality visualized by the investigator is necessarily colored by the latter's attitude and interpretation. Nevertheless, we may hope to gain, from such a study, incomplete as it is, certain information of value in classifying and evaluating the types of personality predisposed to the various psychotic reactions. Hence this attempt.

According to Strecker,⁶ personality in its widest sense takes into account the constitutional factors, as body structure, since "The psychological, physiological, chemical and anatomical endowments constitute the individual's capital in life." He concludes that, "Conditioned by some common guiding influence, perhaps hormonal, they act and react upon one another, harmoniously or otherwise."

Numerous attempts have been made to correlate somatic and temperamental factors. Kretschmer⁸ demonstrated a very close relationship of mind and body, that is, an affinity of the bodily build to the manic-depressive group, finding that about 87 per cent of manic-depressive patients are pyknic or pyknoid of habitus. He found not one manic-depressive of dysplastic physical build. Thus his contention that the pyknic bodily configuration is closely related to the psychothymic personality make-up. Others have described similar types of bodily build, labeling the heavy, broad, thickset individual so frequently associated with the affective psychoses as hypersthenic and the light, relatively tall, slender type as asthenic or leptic. The latter particularly, and also the closely related types, athletic and dysplastic, have been found significantly correlated with the schizoid personality. Draper and McGraw,⁹ in their studies of the human constitution have described gastric ulcer and gall-bladder disease types, that is, individuals of fairly definite morphology who are prone to develop those particular diseases. They find that their gall bladder race corresponds closely in a morphological sense to Kretschmer's pyknic type and the gastric

ulcer race to the asthenic type. Although they mention the contentions of Rhumann, and also Tcherning, that the gastric ulcer types are of schizoid psychology, they have seen nothing in their own studies of psychologic patterns to suggest that the mental make-up of the ulcer race is schizoid or that gall-bladder people are necessarily syntonie. They do find definite differences in the psychic patterns of the gastric ulcer and gall-bladder groups. The former are said to show less mood stability, fearfulness, and quickness to adjust to changes in the environment. They are opportunists, mental sprinters and of little endurance though promptly rehabilitated by food, short rests and relief of anxiety. The ulcer female has been found to show considerable evidence of the masculine component in her psychic pattern. The members of the gall-bladder race on the other hand, are said to show stability of mood, an inclination to slow reactivity, and little fearfulness. There is strong evidence of the feminine component in the psychic pattern of the gall-bladder male.

From personal examinations of a portion of the material used in the present study and from the physical descriptions in the case records of those individuals who were not available for such examination, it is apparent that 46 cases approximate the pyknic or pyknoid habitus and 29, the asthenic constitution.

Numerous personality investigations have demonstrated the correlation of the "shut-in" type individual with schizophrenia and of the "frank, open" type in good environmental contact with the affective psychoses.

Jung¹⁰ has described the two psychological types, extraversion and introversion, the differentiation being based on the direction of the libido-movement in the individual. He designated as the extraverted personality that in which the libido is directed outward towards the object for the adaptation to reality, while in the introvert interests were said to be projected inwards toward the subject; that is, the libido is used for the psychical world instead of being applied to the external world. Some confusion has arisen as to which, if either, of these personality types is the normal. Certain writers have used the term introversion as though it indicated ab-

normality and extraversion as emblematic of the normal. Conklin¹¹ has quoted Freud as using introversion in the sense of the abnormal and has stated that Jung in his early communications apparently considered it as abnormal and extraversion as the normal mode of living, though he recognized both normal extraversion and normal introversion in later papers. White has said, quoting Conklin¹¹ again, "It must not be concluded that extraversion, or introversion, is always undesirable or abnormal—on the contrary they are desirable if properly controlled and made to serve useful ends." They are "only different aspects of life." Conklin¹¹ agrees with many other authors in considering the real normal as one who combines extraversion and introversion in an equally balanced manner, that is, in what he chooses to call ambiversion. As an example, he describes a business man who shared largely in the building of a great industry but who was also a thinker, a student and an essayist of recognized merit.

From the Jungian standpoint, our series of 75 cases may be classed as to personality type, as follows:

	Patients
Extraverted	50
Introverted	9
Approximately equally balanced extraversion and introversion tendencies	16
	—
	75

The marked predominance of extraversion with its openness, its good contact with the environment is evident, while the very low percentage of those shut-in personalities so often found correlated with schizophrenia is significant.

In the following tables analyzing the personalities included in the series under discussion, in which as has been stated the personality outline of Kirby is utilized, data have in most instances been presented in the full 75 cases. In a few cases, the data desired have not been obtainable. The interpretations given are those of the author and the informants and are perhaps unavoidably colored to some extent by his own personality and that of the informants.

I. GENERAL INTELLIGENCE, KNOWLEDGE AND JUDGMENT

	Patients
Learning at school:	
Easy	64
Hard	11
Special ability in certain subjects:	
Present	10
Absent, or no information obtainable.....	65
Attention and concentration (at school and later):	
Normal	66
Subnormal	9
Education:	
College graduate	1
In college	4
Business school graduate	6
High school graduate	4
In high school	11
Grammar school graduate	21
In grammar school	28
Interpretation or common sense:	
Good	60
Poor	15
Plans for career:	
Definite	55
Vague	20
Practical:	
Yes	49
No	26
Artistic tendencies:	
Present	10
Absent	39

The statistics given regarding intelligence, knowledge and judgment tend to corroborate the contention of most investigators that manic-depressive psychosis is inclined to develop in those of good intellectual standard, relatively few being feeble-minded. The fact that only 15 in the series of 75 advanced to graduation from high school or farther may be explained by the fact that the subjects, being State hospital cases, are from an economic class of society in which it is often necessary for the children to contribute to the family budget, or at least support themselves, at a relatively early age. The comparatively high proportions of vagueness in regard to plans for a career and of impracticability seem to the writer to be

rather significant as possible evidence of a cyclothymic temperament. Information regarding artistic tendencies was available in only 49 instances but it is interesting that in 10 of these cases such inclinations especially along musical lines were found. Bleuler² has stated that the intellectual endowments of manic-depressive patients "are often noticeably good, especially along artistic lines, which is probably connected with their sensitiveness."

II. OUTPUT OF ENERGY

	Patients
Talkativeness:	
Talkative	50
Quiet or silent	25
Type of worker:	
Energetic, hustling, hard worker	29
Tendency to overactivity with tension	20
Slow, sluggish, deliberate worker	18
Tendency to inactivity or laziness	8
Overactive or inactive by fits and starts:	
Periods of overactivity	15
Periods of inactivity	9
Alternating periods of overactivity and inactivity.....	15
Not prominent	36
Interests in athletics, sports and recreations:	
Marked interest	12
Average interest	38
Little or no interest	25

In a consideration of the traits tending to show the individual's energy-output, one is struck by the volubility, hyperactivity and the marked outside interests of the cycloid individual, especially in contrast to similar studies of schizoids, as that made by Blalock¹² on a catatonic dementia præcox group in 1932. Two-thirds of the present series of 75 cases were talkative and over two-thirds were active and energetic, while over one-quarter were hyperactive with too much push or tension. Slightly over half of the series were found inclined to overactivity or inactivity by fits and starts, one-fifth of the cases showing an alternation of overactivity and inactivity for short periods. Such mercurial fluctuations are claimed by many investigators to be frequently seen in those considered normal on the outside of institutions. Jelliffe¹³ considers those

periods of hyperactivity and hypoactivity, when combined with excitation and depression, as cyclothemia, a term he used to express "mild grades" of the manic-depressive psychoses and the "constitutional features that underlie such personalities." Paskind¹⁴ believes such fluctuations to be actually brief attacks of manic-depressive psychosis. Writing of the depressive phase of the disorder, he has described 88 cases of recurrent attacks lasting only from a few hours to a few days and has stated that because the "symptoms are exactly like those of the longer attacks," he is convinced that the "miniature attacks are the disorders recognized as manic-depressive" insanity. Two-thirds of the group studied showed interest in athletics, sports and recreations, one-third of that number to a marked degree.

III. GENERAL ATTITUDE TOWARD ENVIRONMENT

	Patients
Attitude toward strangers:	
Bashful	28
At ease	40
Social or aloof and seclusive:	
Sociable	51
Aloof and seclusive	24
Selfish or generous and kindhearted:	
Selfish	23
Generous and kindhearted	28
Stubborn and insistent about having own way:	
Stubborn	35
Not stubborn	24
Trustful or suspicious, holding grudges:	
Trustful	40
Suspicious and inclined to hold grudges	13
Easily offended, imagined slights:	
Yes	27
No	35
General range of interests:	
Wide	45
Narrow	30

The examination of the manic-depressive's pre-psychotic attitude towards his environment reveals him as a sociable individual who tends to be at ease among strangers. He is inclined to have a rather wide range of interests and to be trustful rather than sus-

picious and grudge-holding. There is a slight predominance of generosity and kindheartedness over selfishness but he is quite inclined to be stubborn and to insist upon having his own way. Nearly half of the series studied were sensitive and easily offended, inclined to see slights where none was intended. These findings again, are in some contrast to Blalock's¹² study of the schizoid personality, in which he found the ratio of those who were aloof to those who were sociable to be two to one. Exactly the reverse is found in the cycloid personality. The schizoid series again showed three individuals who were bashful to one who was at ease in the presence of strangers. Our series shows only a little over one-third of the cases to be bashful. Another marked difference from Blalock's¹² study is shown by the examination of the general range of interests, in which only one-eighth of the schizoids showed an average outside interest while nearly two-thirds of our cycloid series had wide interests in their environments.

IV. ATTITUDE TOWARD SELF: INNER MENTAL LIFE

Frank and open or reserved and reticent:	Patients
Frank and open	47
Reserved and reticent	28
Conscientiousness and scrupulousness:	
Over-conscientious and over-scrupulous	14
Average conscientiousness and scrupulousness	38
Tendency to shirk, evade or procrastinate	15
Honesty and truthfulness:	
Honest and truthful	65
Lying and deceitful	10
Egotism, vanity and pride:	
Marked	23
Average	21
Little	16
Self-reliance:	
Self-reliant	54
Dependent	21
Leadership:	
Leader	35
Inclined to be led	25
Neither	15
Degree of affection:	
Affectionate	49
Cold	19

• Demonstrativeness:	Patients
Demonstrative	40
Stolid	22
Number of friends:	
Many	41
Few	31
None	3
Family attachments:	
Strong	30
Slight	35
None	3
Unknown	7
Family attachments and antagonisms:	
Strong attachment to mother	11
Slight attachment to mother	5
Strong attachment to a grandparent	2
Strong attachment to father	12
Strong antagonism to father	2

The group of personality factors mentioned in the preceding division reminds us particularly that the manic-depressive meets his intrapsychic conflict, when repression and sublimation have failed, by the same general methods he always followed in dealing with reality; but he carries them to a pathological degree. The symptoms of these cycloid personalities are in general adjustments made under appropriate conditions by healthy people. Many individuals exhibiting just such characteristics are considered entirely normal throughout life. The only abnormality lies in the fact that they are subject to what Adolf Meyer has called "more or less purely affective oscillations" and those affective oscillations exaggerate the symptoms mentioned into factors which are pathologic in degree though perhaps in relation to the actual situation in which the individual is placed. We find that twice as many of our series are frank and open as are reserved and reticent. About one-fifth of the total show a certain finickiness and over-conscientiousness but we recall that Blalock's¹² schizoid study showed those symptoms in 50 per cent of cases. That tendency is no greater in the present study than an inclination to shirk, evade or procrastinate. Eighty-seven per cent of the series were honest and truthful, 72 per cent were self-reliant and nearly one-half were inclined to be leaders, while one-fifth additional were not easily led. They were largely

affectionate and demonstrative and were inclined to friendships. One-third of the group of 75 showed marked egotism, vanity and pride and only one-fifth lacked those qualities to some definite degree. Sixty-five out of the 75 revealed some degree of familial attachment, 30 to a marked extent. That high proportion would seem to argue for the theory that the difficult and painful problems and situations of the manic-depressive have an ultimate origin in the unconscious.

V. ATTITUDE TOWARD REALITY

	Patients
Tendency to an imaginative and visionary attitude:	
Matter-of-fact or unimaginative	52
Over-imaginative, visionary, day-dreaming	19
Satisfaction with things as they are:	
Satisfied	30
Dissatisfied	42
Religious interests:	
Over-religious	3
Average interest	46
Little interest	11
No interest	10
Type of thinking:	
Logical and orderly	55
Illogical and disorderly	20

The cycloid attitude toward reality closely approximates the average. Nearly two-thirds of the series were matter-of-fact and unimaginative, thinking in a logical and orderly manner and showing the average interest in religion. Only three individuals were over-religious and less than one-seventh of the group exhibited no interest. A certain amount of instability was shown by the fact that 55 per cent were dissatisfied with their lot in life.

VI. MOOD: EMOTIONAL REACTIONS

Stability of mood:	
Placid, even tempered or phlegmatic	7
Cheerful, light-hearted, optimistic	29
Gloomy, pessimistic, worrisome, brooding.....	17
Changeability—periods of buoyancy or despondency....	22
Irritability and anger:	
Irritability, outbursts of anger	42
Little irritability or anger	33

	Patients
Frightened:	
Easily	6
Unknown	69
Sensitiveness, touchiness, grumbling, faultfinding:	
Present	44
Absent	25

In considering our findings regarding mood and emotional reactions, we note that, at least as far as this particular group is concerned, cycloids are inclined to be cheerful, light hearted and optimistic, to show rather frequently marked changeability of mood from buoyancy to despondency, and to be irritable, sensitive, touchy, grumbling and fault-finding. Over one-third of our series were of the optimistic and cheerful type while almost another third were inclined to marked fluctuations of mood, ranging from buoyancy to despondency. Less than one-tenth of our cases were placid, even tempered and phlegmatic individuals. Fifty-six per cent showed irritability, temper tantrums or explosive outbursts of anger. Little information was available regarding fear reactions, it being mentioned in only six instances that the patient was easily frightened. It seems reasonable to suppose that the actual percentage is low since the symptom was so seldom mentioned. Sensitiveness, touchiness, grumbling and fault-finding were prominent symptoms, occurring in nearly 64 per cent of the cases.

VII. SEXUAL INSTINCTS

	Patients
Frankness concerning sexual matters:	
Frank	41
Secretive	19
Attitude toward opposite sex:	
Natural	49
Shy	26
Love affairs:	
Many	15
Few	24
None	20
Married life:	
Well adapted	22
Poorly adapted	20
Single	33

	Patients
Desire for children:	
Desired	22
Not desired	12
Sexual demands:	
Great	10
Small	21
Average	10
Sexual perversions:	
Known	11

From these statistics, which are not complete and not entirely reliable because of the reluctance of the informants to discuss these matters and also because of a lack of knowledge on their part, it would seem that the cyclothymic's sexual adjustment is a rather superficial one. He was frank, in two-thirds of the cases, in talking of the sexual instincts; he was natural and not shy in his contacts with the opposite sex in a similar proportion of instances and in 39 out of 59 cases he had been involved in a greater or lesser number of love affairs. However, at an average age of 30 years on admission to the hospital 44 per cent of the series were still single and half of those married had made a poor adaptation to married life. Only 22 of 34 cases desired children and half of the series made very small sexual demands. Eleven definite instances of sexual perversions were uncovered.

VIII. FEELING OF INFERIORITY

	Patients
Self-depreciation:	
Present	12
Absent	63
Sensitiveness:	
Present	44
Absent	25
Seclusiveness:	
Present	24
Absent	51
Dissatisfaction:	
Present	42
Absent	30
Jealousy:	
Present	21
Absent	25

	Patients
Stubbornness:	
Present	35
Absent	24
Hypochondriasis:	
Present	9
Absent	66

Little evidence of a sense of inferiority was found in the series, in fact the majority exhibited rather a sense of superiority.

To summarize briefly, it would seem that the cyclothymic individual is prone to present the following characteristics. Females are prone to predominate by a ratio of 2 to 1. The physical habitus is apt to be pyknic or pyknoid and the personality type is most frequently extraversion. The individual with this type of personality is ordinarily of good intellectual standard. He is inclined to be voluble, hyperactive and interested in his environment. There is a marked tendency to episodes of over-activity or inactivity and in a certain number of cases mercurial alternations of the two are prone to occur. The cyclothymic is also shown to be a sociable person with a wide range of interests. He is trustful, generous and kind-hearted but stubborn, sensitive and easily offended. Also, he is frank and open, honest and truthful, self-reliant, and of the leader type. He is inclined to be affectionate, demonstrative and somewhat egotistical, vain and proud. Some degree of familial attachment is a frequent finding. The cycloid individual is also matter-of-fact and inclined to think in a logical and orderly manner. He has the average interest in religion. A considerable number of these persons are dissatisfied with their place in life's scheme and tend to fluctuate in mood from buoyancy to despondency. They are usually cheerful and optimistic but may be irritable, sensitive and fault-finding. Their sexual adjustment is apparently a rather superficial affair. A further characteristic is the tendency to a feeling of superiority, possibly as a compensation for an innate sense of inferiority and instability.

The cases studied were selected in equal numbers from the manic, depressed and circular types in the hope of being able to demonstrate peculiarities which might prophesy the development of the particular type. Admittedly the series of 25 cases each in the three

types mentioned is small to permit of the drawing of general conclusions but still it seems worthwhile to call attention to a few points noted.

Concerning body-build, it was interesting to find that in the manic and circular types the ratio of pyknic or pyknoid habitus to asthenic habitus was roughly 2 to 1 in each instance while in the depressed form the ratio was almost equal. If we are justified in reaching any conclusion in this matter, it is that the pyknic constitution is rather typical of the two first-named types but not of the depressed type.

In the full series of 75 cases, exactly two-thirds were found to be definitely extraverted personality types. Again it was noted that the manic and circular groups were very similar in this respect, roughly four-fifths of each being extraverted while that characteristic was marked in only half of the depressed group. Jasper¹⁵ has developed a questionnaire test of depression-elation, from which he has concluded that there is a significant positive relationship between introversion and the predominance of depression in characteristic affective tone and attitude.

Turning to a consideration of general intelligence, knowledge and judgment, we find no marked difference in the three types of manic-depressive psychosis. In all three the tendency was to learn easily in school, to be attentive and to concentrate well. A high proportion of common sense was found in all and there was no variation in their plans for a career or in their artistic tendencies. A rather slight difference in practicability was noted, that character being found in 14 of the depressed type as compared to 17 and 18 respectively in the case of the manic and circular types. Jasper,¹⁵ whose depression-elation test has been mentioned earlier, has also found, from its use, a very slight positive relationship between elation and intelligence but such a relation was not brought out in this study.

As to output of energy, three-fourths of the circular type and nearly that proportion of the manic type were talkative while half of the depressed group were quiet or silent. Similar relationships obtained regarding the tendencies to overactivity with tension and energetic, hustling work. One-third of the manic group exhibited periods of overactivity by fits and starts, a characteristic found in

only half of that number of the depressive and circular groups. On the other hand, the depressed group showed periods of inactivity in nearly one-third of their number while such periods were practically nil in the other two groups. Alternating periods of overactivity and inactivity were prominent in one-fourth of the circular group but much less frequent in the manic and depressive groups. Eleven of the 25 depressive patients had little or no interest in athletics, sports and recreations while 7 each of the other two groups showed similar disinterest.

Regarding the general attitude toward the environment, the depressed group were equally at ease among strangers but tended to be very slightly more asocial, aloof and seclusive than the other two types. There were no marked differences between the groups in their reactions to selfishness, generosity and kindheartedness but the manic and circular groups showed a considerably greater inclination to stubbornness and to having their own way than did the depressive patients. No variations in the groups tendencies to trustfulness or suspicion and grudge-holding, and to easy offense and imagined slights were noted. Also, the depressed group failed to show any lesser range of interests than in the case of the other two types.

Certain differences in the attitudes of the groups to self, that is in their inner mental life were apparent. The manic and circular types were somewhat more frank and open than the depressive type and the latter were more inclined than the others to be over-conscientious and over-scrupulous. There were no marked variations in honesty and truthfulness, lying and deceitfulness, egotism, vanity and pride, self-reliance, dependence, affection, or coldness but the depressive group was somewhat less inclined to be demonstrative and more inclined to be stolid than the other two groups. The manic patient's tendency to make friends was almost twice that of the depressive patient and about one and a half times that of the circular type. One-half again as many manic patients had been leaders as in the case of the other two types. The depressive patient was found to have been nearly twice as often closely attached to members of his family as was either the manic or the circular patient.

In the cycloid patient's attitude towards reality, the same tendency to dissatisfaction, the same religious interest and an almost identical ability to think in a logical and orderly manner in all of the three types was found but there was a difference regarding imagination. About 80 per cent of the manic and circular patients were matter-of-fact and unimaginative while of the depressives, about 60 per cent were of that type and conversely, 40 per cent were over-imaginative, visionary and inclined to day dream.

As to mood and emotional reactions of the three types all were equally inclined to sensitiveness, touchiness, grumbling and fault-finding. Half of the manic type were cheerful, light-hearted and optimistic while only one-third of the other two groups showed those characteristics. Slightly over one-third of the depressive type were gloomy, pessimistic, worrisome and brooding, a picture shown by only about one-sixth of the manic and circular types. Half of the latter group showed marked changeability from buoyancy to despondency but such fluctuations were present in only one-fifth of the manics and depressives. Forty per cent of the depressive patients were irritable and inclined to outbursts of anger while slightly over 60 per cent of the other two types showed such defects.

In a consideration of the sexual instincts, it was found that the entire series tended to be frank regarding such matters but about one-quarter more of the depressive type were shy in their attitude toward the opposite sex than were the manic and circular types. Similarly, the depressive patients had had somewhat fewer love affairs. The percentage of marital disharmony was high in all cases. The manic and circular types showed the greater desire for children. There was no variation as to sexual demands or sexual perversions in the three types.

A somewhat higher proportion of feelings of inferiority was manifest in the depressive group.

Thus, the type of cyclothymia leading to the manic reaction frequently occurs in the pyknic individual and would seem to include extraversion, frankness and openness, a relatively high general intelligence, and a tendency to talkativeness, overactivity with tension and the ability to work hard in an energetic and hustling manner.

Periods of overactivity by fits and starts are relatively frequent, the individual tending to hold too many interests and therefore being unable to give each object a proper share of his interest. He does not attach his libido in a sustained manner. The manic type is sociable, very friendly, at ease among strangers, inclined to be stubborn and insistent on having his own way. He tends to be trustful, cheerful, light-hearted and optimistic and is usually honest and truthful. He is somewhat egotistical and vain, markedly self-reliant and tends to be a leader. Affection is frequently shown in a demonstrative manner and quite often familial attachments are prominent. He is a rather dissatisfied type of individual, is matter-of-fact and unimaginative and is somewhat inclined to irritability, outbursts of anger, sensitiveness, grumbling and fault-finding. His attitude regarding sex is usually a frank, natural one, and he is inclined to love affairs but marital disharmony is marked. Apparently his interests lie in heterosexuality but he does not adapt well to that level. There was a feeling, at least superficially, of superiority rather than inferiority.

The cycloid type of personality leading to the circular reaction agreed rather well with that of the manic except in the following particulars. Patients of the circular type were found considerably more inclined to alternating periods of overactivity and inactivity, and somewhat less able to make friends and to assume leadership. They were also somewhat less cheerful, light-hearted and optimistic than were the manic type though they were not gloomy, pessimistic or worrisome. A tendency to marked changeability of mood also seemed to predispose to the circular reaction.

The candidates for melancholia seemed no more prone to the pyknic habitus than to the asthenic, nor was there any difference in the frequency of extraversion and introversion. They also tended to be of good general intelligence and exhibited common sense and quite good judgment. Perhaps they are a little less practical than the other two groups. The depressive cycloid is also a quieter, less energetic and less active individual and is somewhat prone to periods of inactivity. He often shows little or no interest in athletics, sports and recreations. A tendency to be shy, retiring and inhibited is also often seen, and he makes relatively

few friends. He is a trusting, honest and truthful person and is not stubborn. This individual is also somewhat egotistical, vain, proud and self-reliant but he is not a leader. He does his work often in an over-scrupulous and over-conscientious manner. Although affectionate, he is not inclined to demonstrativeness and is somewhat stolid. There is a considerably greater tendency to familial attachments than in the other cyclothymic types. He is a dissatisfied, sensitive individual and quite frequently is over-imaginative, visionary and inclined to day dream. Fairly often, he is gloomy, pessimistic, worrisome and inclined to brood. He feels disappointed and frustrated but less frequently than in the manic and the circular shows irritability and outbursts of anger. The depressively predestined individual is often shy in his relations with the opposite sex and has fewer love affairs. He also tends to find married life uncongenial and is less desirous of children. He tends to feel inferior. This type has been said to be extremely narcissistic, his attempts to objectivate his libido being failures because the libido is very loose and easily retracted within himself.

In conclusion, it may be said that a considerable number of individuals prone to develop manic-depressive psychosis have a life-history of behavior deviations predisposing to the type of abnormality developed. The importance of the study of pre-psychotic personality would seem to lie in that fairly wide margin of safety between the appearance of the constitutional tendency and the actual break from reality. The early recognition of such a tendency should be utilized from the prophylactic standpoint.

BIBLIOGRAPHY

1. Henderson, D. K., and Gillespie, R. D.: *A Textbook of Psychiatry*. Oxford University Press, 1931, p. 117.
2. Bleuler (Brill): *Textbook of Psychiatry*. Macmillan Co., N. Y., 1930, p. 488.
3. Malzberg, Benjamin: *A Statistical Study of the Factor of Age in the Manic-depressive Psychoses*. *PSYCHIATRIC QUARTERLY*, October, 1929, p. 590.
4. Kirby, George H.: *Guides for History Taking and Clinical Examination of Psychiatric Cases*. State Hospital Press, Utica, N. Y., 1928, p. 20.
5. Hoch, A., and Amsden, G. S.: *A Guide to the Descriptive Study of the Personality*. *State Hospitals Bulletin*, November, 1913, p. 344.
6. Strecker, Edward A., and Ebaugh, Franklin G.: *Clinical Psychiatry*. P. Blakiston's Son and Co., Philadelphia, Pa., 1931.
7. Healy: *Proceedings—Second Colloquium on Personality Investigation*, 1929. The Johns Hopkins Press, Baltimore, Md.

8. Kretschmer, E.: *Physique and Character*. Harcourt, Brace and Co., 1926.
9. Draper, G., and McGraw, Robert B.: *Studies in Human Constitution: The Psychological Panel*. *Am. J. of Med. Sciences*, Sept., 1927, p. 299.
10. Jung, C. C.: *Psychological Types. Problems of Personality*. Harcourt, Brace and Co., Inc.
11. Conklin, Edmund S.: *The Definition of Introversion, Extraversion and Allied Concepts* *J. of Abnorm. Psychol. and Soc. Psychol.*, Jan.-Mar., 1923, p. 367.
12. Blalock, Joseph R.: *Personality and Catatonic Dementia Præcox*. *PSYCHIATRIC QUARTERLY*, October, 1932, p. 625.
13. Jelliffe, Smith Ely: *Cyclothemia—The Mild Form of Manic-depressive Psychoses and the Manic-depressive Constitution*. *Am. J. of Insanity*, Apr., 1911, p. 661.
14. Paskind, Harry A.: *Brief Attacks of Manic-depressive Depression*. *Arch. of Neurol. and Psychiat.*, July, 1929, p. 123.
15. Jasper, Herbert H.: *The Measurement of Depression—Elation and Its Relation to a Measure of Extraversion—Introversion*. *J. of Abnorm. and Soc. Psychol.*, Oct.-Dec., 1930, p. 307.

PUPIL GUIDANCE*

BY V. V. ANDERSON, M. D.,

DIRECTOR, THE ANDERSON SCHOOL AND THE SPRUCES, STAATSBURG, NEW YORK

In addressing you this evening on guidance I am reminded of a report I made five years ago on "Job Placement of Junior Employees" for one of the great mercantile establishments of the country. This was a study of a very large group of young people, coming fresh from the public schools to their first job out in industrial life. We were struck with the enormous amount of turn over in these junior jobs amongst youngsters who supposedly were carefully selected.

In fact, the separation among employees under twenty years of age in certain jobs was 13 times the frequency to be expected from the personnel as a whole.

In seeking information as to the causes of separation we found "job dissatisfaction," "work failure," "poor production," "day-dreaming, resentment of authority, dawdling and fooling in department, poor work habits, lack of interest, attendance problems (lates and absences), leaving department and wandering over the store, always running to the hospital, etc.," were given by department heads as the commonest complaints in the cases of these youngsters. We did not find anywhere such statements as poor intelligence, lack of education, bad health and the like (in the case of those running to the hospital we found neurotic personalities rather than poor physical condition).

We were struck with the good health and good intelligence of our cases and with the great frequency of poorly educated minds, if education has anything to do with habits and attitudes, with self-control, and the ability to meet one's everyday reality effectively.

We were struck with the immaturity and lack of integration of the personalities of these young people, when it came to doing things rather than talking about them, when it came to meeting practical issues related to the simple everyday responsibilities of their jobs. I am not here referring to skills acquired through specialized training but to the fundamental personal acquisitions that should have been achieved as a result of many years in school—if

*Address to Albany County Mental Hygiene Association, December 12, 1933.

education really has as its purpose the training of the mental life of the youngster, fitting him to live successfully and to enjoy competing effectively with his fellows, to get satisfaction out of his task and to contribute a service to those with whom he is associated.

The I. Q.'s and the academic subject achievement levels and the book knowledge of these youngsters were entirely out of proportion to their work attitudes, their sense of responsibility for their tasks, their work habits and their work appetite. It was our observation that these attitudes and habits not only appeared in their job life but manifested themselves in their general social and family adjustments. In summing up the study, the report ran: "As one reviews, in the hundreds of cases studied, the great variety of individual and personal problems other than pure job placement, commonly presented by the majority of these young people, one cannot help being struck with the effects of this costly failure upon the part of the school system to recognize personality adjustment and development and mental health as being of as much importance as academic information, as the height and weight or tonsils and adenoids that are so commonly and repeatedly scrutinized during the public school period.

Hordes of boys and girls are turned out into industry each year whose work habits and mental attitudes towards reality, whose ways of meeting important life situations and whose personalities are so immature and infantile as to invite shipwreck when later faced with the job and work difficulties of everyday life. The common job failures and job misfits, the lay-offs, the discharges and resignations that we daily come in touch with among these young people, just starting on their work careers, are not traceable to a lack of instruction in geography, arithmetic, English, etc., nor to some temporary situation arising in connection with their work as often as they are the outcome of deep-seated personality faults that should have been recognized and intelligently dealt with in all justice to the individual much earlier in the game and at a time when preventive work gives promise of successful achievement. There is no reason for feeling that business men or health authorities will assume this responsibility; the fullest development of the individual's capacities, his normal growth and fitness for citizenship be-

comes the job of our school system. Mental hygiene then, and all its implications in the public schools and the psychiatric technique of guidance in the training and development of each child, is the ideal to which we must look for solution of these problems.

The case histories show how complex the problem is and how inadequate that sort of study and counseling would be that is limited to the giving of psychological tests. Tests play a part but a very small one in the whole scheme of vocational and personality guidance" and so the report ran on.

Well, a lot of water has run under the bridge since those days. And now these things are not only being recognized by school executives throughout the country but in many places are being planfully dealt with. It is with a feeling of great satisfaction that one can have the conviction that a newer and broader conception of education—its aims, its meaning, its purposes, its procedures and techniques, is well under way—that *guidance of the pupil* is now becoming the prime task of the classroom; that the activities of our schools are becoming evaluated and motivated towards the whole life of the pupil and thus are assuming newer meanings; meanings heretofore not at all appreciated under mass methods of instruction; that the keynote of our schools today is not the requiring of pupils to pay attention, memorize, recite and take examinations, but guidance in attaining educative and developmental experiences that lead to healthy and effective *growth* of the individual pupil's personality.

There is, however, a fly in the ointment. All these ideals become pure theory unless they are actually put into daily practice. Two case workers among 2,000 students are practically useless from the standpoint of the fundamental needs of the situation. Guidance must be looked upon as the essential need of all children and not just those pupils who outwardly exhibit such serious abnormal behavior as to come to the attention of school authorities.

Guidance is the main function of our educative procedure, and aside from all its possibilities in steering and stimulating the learning process; adequate guidance of the individual pupil would imply that he receive counsel and aid in facing daily his own opportunities and his own difficulties in order that he may be prevented from

developing attitudes, habits, mental patterns and ways of doing things that are likely to lead to failure in life; and in order that he may be wisely guided in ways of reacting and behaving to educational stimuli in his environment so that his behavior will serve the useful purpose of developing a healthy, capable, and effective personality. Only the teacher can do this job—but a different sort of a teacher from that which our normal schools in the past have been producing.

If stimulating, wise, and resourceful guidance becomes the main function of the classroom, how can we hope for its successful accomplishment unless the teacher is equipped both by nature and nurture to do a good job along these lines. We have assumed that giving the student teacher academic subject knowledge, methods of teaching, practice work, and a little information in psychology along mental hygiene lines would amply fit her for her task, emphasizing as we did her ability to get children through certain subject matter to the place where they could pass tests. But now in the light of our newer conception of the educational job—the well-developed, well-adjusted, healthy-minded, well-coordinated and integrated pupil—we have formulated the sort of qualifications for the new teacher that are in keeping with the practical possibilities in the way of attaining such objectives in her pupils.

The maturity and integration of the personality of the teacher have come to be considered among the most important qualifications for that individual who would maintain the mental health of the classroom and guide in the all-around development of the personalities of individual pupils. There is no doubt that we have relied too much upon the results that might be achieved through giving teachers now on the job information about diagnosis, guidance, treatment, general mental hygiene knowledge about the personal problems of children and how to deal with them. The largest influence of the teacher is his or her own personality and we cannot greatly change this—her habit and attitude life—through a smattering of information. But it is the fundamental attitudes and habit tendencies of teachers that block the day by day application of those principles and practices of mental hygiene, of psychology and psychiatry that we feel the growing child should absorb from

the atmosphere of the environment in which he develops that make possible guidance that is healthy, worthwhile, and effective.

We have come to realize that character is not made in youngsters through reading books as much as through doing things—that few of us do as well as we know. By the same token, it is not teaching about the good life to youngsters that achieves the healthy, effective personality, but the living of it.

The greatest influence in enabling the youngster to achieve healthy living is to be seen in terms of the personalities with whom he comes in contact. The most deeply constructive or destructive forces in the life of any child are those arising out of situations created by the personalities who live in the environment closely surrounding him; and of all personalities that favorably or unfavorably effect his life, none quite compare in importance with those of parents and teachers.

No matter how well school systems and buildings are organized and equipped, no matter what the courses are, or the paper arrangement of the curriculum; the whole thing comes down to the question of the teacher who is to be the agency through whom these facilities come to the child. If she is a poorly equipped individual—and by this one is not referring to intelligence and academic training—she may stultify every ideal and standard planned for the well-rounded development of the child.

It is not necessary to repeat here what has been so well said by others concerning the tragedies of schoolrooms manned by immature, poorly-balanced, maladjusted teachers—and the lasting damage they have wrought in the personalities of certain children. Much has been said and written of the unhealthy and destructive compensations that sadistic, or ignorant and inadequately equipped, or dependent and insecure, or lazy-minded and unresourceful teachers have initiated in children under their care. The presence of such personalities in the schoolroom and in the home have become the really serious barriers that block progress in the now widespread movement for the mental hygiene and *healthy guidance of childhood*.

Convincing work has been done in industry in the development of techniques for the elimination among applicants of those candidates

unsuited for training for executive positions; individuals who were inadequate, ineffective, unproductive and unprofitable, and the selection of productive employees who prove later to be highly effective executives. Sufficient control in the way of careful follow-up of this work over a period of three or four years was established to demonstrate that effective executives could be successfully selected in more than 90 per cent of the cases as compared with the older experiences of 30 per cent to 40 per cent of successes.

It is neither necessary or desirable to go into the details here of these experiments—setting forth the work done in conducting thorough going job analyses; setting up job and personnel qualifications; developing techniques for examining the personalities of candidates; and finally checking up the results of the examinations in each case against the qualifications for the individual job—and at last a selection of the most promising candidate from the group applying. We learned to put no dependence upon recommendations.

Something of a similar nature could be done in conducting job analyses, personnel qualifications and examinations of the personalities of candidate teachers. If this were done, we would certainly not so commonly come face to face with the anomalous and monstrous conditions created in school children by men and women teachers who themselves have not grown up, who have not succeeded in making a social adjustment of their own lives, and who are a threat to the mental health of children.

Furthermore, it ought to be possible not only to pick out well adjusted, stable, mature and healthy-minded teachers with good insight into themselves and their reality, but in the light of careful job analyses, it ought to be possible to select people who are eminently suited for each phase of the teacher job—that is, the placement of each individual in the field of teaching best suited to his personality qualifications.

Probably of a far greater importance than all this, if we really expect to achieve the ideal *guidance* situation in the classroom, is the emphasis we ought to put on the techniques of recruiting and training student teachers in normal school. Here is the crux of the whole problem. Before a candidate is accepted in normal school

and teachers' colleges, a well-rounded personnel study should be made. This will include a thorough psychiatric, medical and psychological examination, all organized with the end in view of determining in the light of personnel qualifications the individual's suitability for the job of developing and educating children.

Unstable, poorly adjusted, ineffective, immature personalities will be eliminated. Static, unimaginative, stolid, unresourceful people without initiative will be eliminated and mature, well-balanced dynamic, highly alert, healthy, well-integrated personalities with a fine sense of reality will be accepted.

The training of student teachers should be far more purposeful and more carefully planned in the light of the future needs of the individual teacher than is now conceived of, for instance, acquainting her with a lot of subject matter in different fields of knowledge, plus giving her the chance to observe the work of other teachers, *plus a practice period of teaching on her own.*

Certainly the teacher needs to know a tremendous lot about children and as much about the contribution coming from the fields of medicine, psychology, psychiatry, and social case work as they bear upon children and their needs, as the psychiatric social worker receives in her training, or the visiting teacher. Furthermore, each and every teacher needs a prolonged practice period of a child guidance clinic type of training, in a school setting where she can learn something about diagnosing the individual child and some practical experience in guiding youngsters in connection with their daily adjustments under adequate supervision. She needs a lot of actual experience in such a setting. In other words, practice schools for teacher training should introduce the case method familiar to child guidance clinic work as a basis for the technical preparation of the teacher in understanding the child and in training the child.

Out of this new school situation has come an entirely different conception of the curriculum. One that is no longer limited to a group of chosen text books, with a certain number of pages to be covered and a certain amount of work to be memorized or done, but a curriculum to which has been added thoughtful and serious provision for all the growing needs of young people and children; a curriculum related to the increasing complexities of the world in

which the child lives—a curriculum that provides actual and real acquaintance and contact with everyday life, and a curriculum that is flexible enough to meet the needs of individual children.

A GUIDANCE DEPARTMENT

The end to be accomplished through guidance is a clearly visioned and purposeful achievement in the personality make-up of the student. The most important tool in bringing about these results is the teacher. She becomes a diagnostician and therapist as well as teacher if she manages successfully the entire classroom armamentarium according to the needs of each pupil.

However, the main diagnostic, planning, integrating, and directing agency of the school system, whose business it is to utilize the whole school system and all its facilities to accomplish, in the light of a fairly well-rounded study of the student, the results that the school should achieve in the individual pupil is the guidance or personnel department.

Mental and physical measurements; child guidance clinic work on problem cases; educational methods and procedures, could all be profitably grouped here for they will all benefit by a coordinated teaming of methods and results as they bear upon the job of educating children. This department is the center of all running records of a given child. It is the chief counseling agency of the school for general educational and personality problems. It is the advising body for teachers on problem children or other problems they have not been able to deal with satisfactorily. It is the main counseling center of all pupils. It is the place to guide teachers in knowledge about individual children and the best methods of dealing with them. It is the permanent training bureau that the school maintains for teachers in connection with pupil guidance. It is the vocational advisory center for students. It is the follow-up agency of the school on children who are out at work. It is the research department—charged with the duty of studying procedures and improving methods.

In my own work, wise educational placement and safe guidance is not considered possible without a reasonably thorough study of the individual. So that any educational guidance of the pupil

awaits a first hand case study in order that we may know the material we are dealing with—the entire personality and its needs. This case study is composed of medical findings, psychological findings, educational findings, social findings, and the personality study. This constitutes for us the fundamental basis for undertaking anything like a scientific job in educating a given child. Such a record is not possible in the average school system and, I think, probably not desirable.

The record charts that are now being kept in most large school systems furnish a year by year account of the health and physical condition, of the educational status, subject difficulties, results of psychological testing and educational testing, of home and other social data, personality-characteristics and the like; and these have become immensely valuable as a case record background upon which to build an intelligent program for a youngster.

In our own work. After our case record has been obtained we make out what we call an outline of training and treatment. This is something like the following:

One side of the chart under the heading of *academic* work is used to record for our own guidance in the student's case what we believe we can and want to do for him during the school year; on the other side of the chart how we are going to do it.

The same is done for physical training.

The same is done for health.

The same is done for social and recreational life.

The same is done for the arts and crafts and other school activities.

The same is then done for the personality and its adjustment, and finally we record what we want to do in the parent-child relationship and how we think we can accomplish it. This becomes our plan and our guide. We now interview the student. We find out his interests, the things he wishes to do in the school, the activities he wants to choose, the courses he wants to take; and in the light of our knowledge of his case record we guide him in connection with his selection and what the State requirements demand. A tentative daily program is made. This is not firmly fixed but is purely a plan against which we can work, and by *we* I mean the student also. It

is changed frequently when not functioning adequately. After the outline of treatment and training and the tentative program have been typed and in shape, this together with a brief summary of the important facts in the case of the student is submitted to the teaching staff at its weekly meetings. Their viewpoints are brought out and if valuable are incorporated into the program of educating the child. A copy of the pupil's daily program is given to him, also to the attendance officer, to the office of the school and to all teachers concerned. The pupil now starts work.

The guidance department follows up daily on all new pupils and weekly on all old pupils. This follow-up indicates the need for changing programs or continuing them further. Consultation hours are provided for students each day, also for teachers.

Once a month there is a complete review by the guidance department of the progress or the general adjustments of each pupil. Programs are changed during the month if not functioning satisfactorily.

The findings in the monthly review of the pupil are carefully written up for the director of the school to judge what he is accomplishing in each student. Twice during the school year there is a very complete write-up of the guidance records into a detailed report of the development of each pupil. It is through suiting the educational tools and facilities to the needs of each student as a close and careful follow-up of the adjustments of the child indicates what these needs really are; it is through continuing guidance of the child daily as he behaves to the educational stimuli in his environment; it is through wise guidance of teachers in their contact and developmental work with children that the guidance program of a school system really functions.

We very frequently find that the largest factor in a particular pupil's subject difficulties is the teacher's own attitude, his ways of behaving in the classroom, his methods of teaching, etc., and it is for this reason that one of the members of our guidance staff carries on a running survey of the classrooms of the school; the findings in each case are brought home to the teacher so that a follow-up on teachers' ATTITUDES and methods (and note that I put *attitudes* first and in capital letters) is as profitable in our experience as a close follow-up on the child's adjustments.

SOME PERTINENT PROBLEMS IN THE ADMINISTRATION OF PHYSICAL EDUCATION FOR THE MENTALLY ILL*

BY JOHN EISELE DAVIS, M. A.,

SENIOR PHYSICAL DIRECTOR, VETERANS' ADMINISTRATION HOSPITAL, PERRY POINT, MD.

Particularly during the last decade, there has been a pronounced emphasis upon physical education as an adjuvant in the treatment of mental illness. While State, Federal, and private institutions have in many instances been forced by rigid economies to curtail expenses, new departments of physical education have been added in many mental hospitals and others which have had such departments have enlarged the scope of their operation. The realization of social readjustment as the practical criteria of treatment, has led to a natural stress upon all aspects of social medicine. Of late years, this concept has led to the formulation of what Dr. Brush of the Burke Foundation first termed "convalescent therapy." Dr. Brush, in talking to the writer, stated that his idea in using this term was to differentiate the resocializing therapies of work, play and relaxation as opposed to the drug medication used in acute cases. Some hospital administrators have developed convalescent therapy under the three general heads of occupational therapy, recreational therapy and physical therapy. Since the patient in the mental institution today receives but little drug medication and is treated over a much longer period by convalescent therapy, it is pertinent to inquire as to some problems which present themselves as a result of practical administration of these adjuvants. It is the purpose of this paper to discuss some of these problems which have arisen in an attempt to administer a highly diversified program of physical education to a large group of psychotic patients over a period of many years.

PROBLEM OF SOCIAL TOLERANCE

The distinctive levels of social feeling and expression of the psychotic patient is most illuminatingly brought out in a highly diversified program of physical education. The writer has made it a special practice to observe and record in so far as practicable, the

*This article is published under authority of the Veterans' Administration. The author, however, assumes full responsibility for any opinions expressed.

social reaction of the patient to various stages of competitive exercise. Patient A will only indulge in solitary play, such as bowling when other patients are absent. Patient B will play with a limited group, perhaps two or three with whom he has found some exclusive attachment. Patient C will play in a larger group relationship of his friends where the competition is not intense, such as an intra-ward volleyball game. Patient D will play on his ward team against another ward, but cannot play against a strong outside team, because as one patient expressed it the "strain is too great." Patient E. will play in a group relationship suffused with confidence by the participation of someone who has "an infectious personality" to use Myer's term, but cannot play without this added resocializing factor. Patient F cannot participate in a game in which some particular patient plays because, as he expresses it, "He tires me." Psychiatrists have called attention to a psychogenic tiredness which emanates from certain types. This appears to be born out in the practical administration of games. One of the distinctive, and I feel most valuable functions of physical education is to find the level of the social tolerance of the patient and by wholesome and pleasurable resocializing physical activities advance him to higher levels. While this may appear to be theoretical, I have recorded many instances of patients who, to use Adler's term, were advanced from the stage of social "tenderness" to social participation and social responsibility. Patient X, a hebephrenic precox, displayed mechanical ability of high form in baseball. In limited social play such as throwing, catching and batting the ball, he demonstrated ability way above the average. He was placed on the first team of the Veterans' Administration Hospital, Perry Point, Md. This team traveled to a nearby city to play a strong outside team. Patient X was very ill at ease in this new social relation. While he had excellent motor skill, he was uncomfortable in personal relationships of the game. Finally a ball was hit to him while he was playing second base. He made awkward movements toward it, muffed the ball, picked it up and made an inaccurate throw to first base. He then walked in toward the players' bench simulating a sprained ankle. He continued this hysterioform movement for a long time afterward. Realizing that the patient had

been placed in a too-severe social relationship, he was relegated to a ward team. He was then gradually advanced to higher teams in accordance with his gain in social stamina, until he became more confident and could do his best against strong outside teams. This patient is now at ease in a social group and is at present at home on furlough. Physical education, particularly play, because of its strong instinctive basis, is of acknowledged value in raising the social tolerance of the patient.

The distinctive tendencies of informal exercise in the process of resocialization appear to be as follows:

- A. Extroverting tendency.
- B. Inhibiting tendency.
- C. Redirective tendency.
- D. Motivating tendency.

Many who emphasize sublimation through exercise seem to neglect the motivating tendency. Others emphasize the extroverting tendency and appear to forget or deny the inhibiting character. From practical administration, one very clearly observes that the instinctive and spontaneous urges brought to the surface in a suitable game may result in one or more of the four factors enumerated: extroversion, inhibition, redirection and motivation. Collection and correlation of observed data will undoubtedly disclose a wide field of physical education in its relationship to the social tolerance of the patient. A system of resocialization scoring which will reflect the group adjustment level capacity and achievement, will probably be devised in somewhat the same manner in which physical tolerance is evaluated by the physiologists of our day.

PROBLEM OF INITIAL PARTICIPATION

Janet's statement that there is a lowering of the instinct to action in the dementia præcox patient is especially evident in the attempt to provoke the initial participation into constructive activity. Getting the patient started is considered by some authorities as representing the crux of the reconstruction problem. There is no doubt but that physical education has a distinctive tendency in this situa-

tion. The primary urge to play is, of course, deeply seated in instinctive life and is easily and naturally awakened, where more formal work procedures cannot be evoked. This is particularly true of the psychotic patient. Many of these types can be reactivated by play when all other agencies fail. Dr. Dunton, an acknowledged authority in mental reconstruction, recently stated in a lecture before the staff of the hospital at Perry Point, Md., "There is no doubt but that many of your patients who have improved and gone home have been stimulated into activity through play."

The problem of the distinctive place of physical education in inciting the initial phase of activity is undoubtedly pregnant with possibilities for a more effective resocializing therapy.

EXERCISE FOR DISEASE ENTITIES OR TYPES

While from an administrative viewpoint, it may appear advisable to classify exercises for various psychoses, I believe that a far more effective method is based upon types or immediate psychological reactions. Physical education administered for its resocializing adjustment is most effective when we attack the introvert or extrovert make-up of the individual. Introversion and extraversion are becoming generally accepted as a rational and effective basis for therapy. One should also take into consideration abnormal psychological reactions due to what Menninger terms excessive deficient or distorted perception, volition, emotion or intellection. This emphasis upon types or immediate psychological reactions is preferable to a stress of disease entities, since many patients of different psychoses have similar motor capacity and display in play no marked social divergencies, due to their distinctive psychosis. For example, the paretic and encephalitis cases demonstrate about the same capacity in bowling duck pins. Their psychologic reactions while at play may vary somewhat from day to day, but from such observation per se one could not discover definite differences between the two disease entities.

Further observation and experiment will probably show more conclusively that physical education can be administered more effectively upon the basis of type rather than disease entities.

RELATIONSHIP OF WORK AND PLAY MECHANISMS

Undoubtedly much confusion has arisen in the effort to separate into distinct therapeutic entities, work and play. A pressing problem for reconstruction is offered to the psychiatrist who can properly relate these as component parts of the reconstruction program. Play should be looked upon as the spontaneous and informal and natural aspect of activity, while work should be viewed as a complement in which the formal, restrictive and industrial aspect of activity is inherent. Play should be viewed as instinctive and automatic, work as industrial, restrictive and both as interdependent and contributing factors to the sound, rational and balanced therapeutic regimen. Confused thinking here is due to the untenable notion that work is a separate function from play and superior since it produces something of monetary value, whereas play produces nothing tangible. Another confusion is due to the puritanic belief that the education of the body is inferior to the education of the mind and that physical education is secondary to a more significant mental culture. The psychiatrist, with the help of the physical director, will, of necessity, formulate a valid conception of the complimentary and legitimate field of the play and work mechanisms and their distinctive significance to therapy.

EDUCATIONAL ASPECT OF PHYSICAL EDUCATION

Physical education, to be effective in the field of mental reconstruction, must appropriate to itself the many valid and workable educational approaches and methods. Dewey's dictum "We learn by doing" has special significance here.

The fundamental difference between reflex and voluntary movement is of vital importance. Generally it appears that the far-regressed patient should be reactivated at the reflex or automatic level and progressed to the voluntary stage. James calls attention to the fact that the basic character of games is their automatic nature which provides their inherent zest. Games learned by the patient before mental illness provide a most effective reflex reactivation. As the patient improves he may become interested in a more detailed examination and study of the game which may naturally express itself in the higher forms of voluntary activity.

Professor Latarzet calls attention to the entry into consciousness of factors which upset the automatic function with the result that movements which have become reflex and have emerged previously as smooth coordinations may become awkward and clumsy because of the collapse of the automatic function. In the neurasthenic, especially, due to the characteristic operation of fatigue, there is often a timidity of action, a straining in which the automatic, as well as the voluntary movements, lose the fine balance which comes from a normal functional and anatomic adjustment.

The psychiatrist and physical director will find a promising field of study in the relation of the fields of physical education to desirable levels of activity which will stimulate the psychotic patient in constructive direction.

The educational mode of approach also provides a pertinent problem. The physical director will readily discover the advantage of having the patient "handle the object" to use Dr. Meyer's term rather than dissipate and possibly distort available energy in discussing the advisability of participation. For example, in an attempt to enlist the regressed patient into baseball, it is much more effective to place a glove in the patient's hand and throw the ball to him than to utilize verbal suggestion or persuasion. Dr. Meyer explains the difference between these two procedures somewhat as follows: When the ball is thrown to the patient or when the glove is placed in his hand he touches the object and comes into direct relationship with reality, in which interposing delusions, hallucinations, ideas of inferiority, fears and other psychic difficulties do not come so prominently into the focus of consciousness. This educational aspect of the initial participation provides a basic problem which will possibly develop far more effective methods in rehabilitation.

PROBLEM OF HEALTHY MOTIVATION

Experience apparently points to the conclusion that suitable motivation is a most important factor in mental rehabilitation. Games provide a most natural and spontaneous motivation. Many will play when they will not work. A highly diversified program will appeal to the instinctive life of the patient. Play as a motivating

influence should be more scientifically examined as well as its sustaining influence in balancing a therapeutic program of work, rest and recreation. William Menninger's concept of therapeutics advancing along the lines of the creation of a more comfortable environment and the establishment of progressive and scientifically controlled friendships is of special significance in the organization of a program of physical education.

RELATIONSHIP OF PLAY TO ART AND INDUSTRY

Physical education in the normal field is today stressing industrial and artistic aspects. Dr. Jack reminds us that recreation is achieved by rational education in creative activities, in which participation rather than spectatorship is provided, and in which one may progress from simple primitive play to the most engrossing art. The discovery of a relationship between play and art is expressed in many forms of higher physical education, particularly the expressionistic exercises of the modern German school.

In therapy, physical education is tending toward a closer alliance with art and industry. This tendency is basically sound, as it creates more human joy from active relationships and gets away from the untenable notion that physical efficiency is based upon bodily measurements. Schweigher and Englehardt state the case when they say that "these anthropometric measurements do not necessarily have any direct relationship to functional efficiency." The skill hunger of the individual is only appeased in the higher artistic forms of exercise and such satisfaction is an acknowledged adjunct to functional efficiency.

The therapeutic relationship of exercise to industry is of vital importance. A more completely mechanized and industrialized mode of living is leaving its impression upon forms of physical education and molding it into more economic forms. While play can never become industrial in form, there is undoubtedly a legitimate field for developing a closer relationship between play and work so that the expansive spirit of the former may be more effectively injected into restrictive routine, and so that a wise utilization can be made for our increasing leisure time. The alert therapist will readily discover many inspiring recreational impulses in play

situations growing out of work. Most sound attitudinal re-education may well result.

Other problems in this connection hinge around the better organization of participation rather than spectatorship, and correcting in so far as is practicable, the homosexual in place of more heterosexual relationships in physical education in our mental hospitals. An examination of national systems of physical education for the purpose of determining any distinctive contributions which may be appropriated to the therapeutic armamentarium is undoubtedly of value. For example, in the Japanese system of Jiudo, the basic principle of physical education consists of first giving way to gain final victory. This fundamental principle of gentleness, serenity and stabilization of movement probably contains valuable elements which may be of value to mental hygiene. The expressionistic system of the Germans as found in the multifarious movements enunciated by Jahn; the cultural aspects emphasized by the English class-ists in physical education; the athletic club system of France, characterized by definite methodical, controlled, adaptable, physiological and social programs; social and industrial motivation in physical education to be found in Finland—all these systems should be examined for possible contributions to a rational therapy of physical training.

A rational modern philosophy of play which may well afford a sound and effective viewpoint for the reconstruction program is well expressed by Jesse F. Williams: "Physical education will make possible this contribution to our common culture by developing, expanding and distributing the idea that play is a worthy part of the good life, that fine recreation is not only compatible with, but essential to fine living and that devotion to work and neglect of play are as injurious to a fine life as over-production of goods is injurious to economic life."

REFERENCES

1. Lehman and Wittz: *The Psychology of Play Activities*. New York, 1927. A. T. Barnes & Co., pp. 1-44 and 212-235.
2. Brush, F.: *Recreational Therapy*. White Plains, N. Y., 1929. Sturges Fund of the Burke Foundation.
3. Menninger, Karl: *The Human Mind*, 1929. New York. Knopf & Co.
3. James, William H.: *Principles of Psychology*, 1890. New York, Holt & Co., Vol. 2, p. 487.

166 PROBLEMS IN ADMINISTRATION OF PHYSICAL EDUCATION

4. Jacks, L. P.: *Education Through Recreation*. New York, 1932. Harper Bros., p. 155.
 5. Bleuler, E.: *Textbook of Psychiatry*. The Macmillan Co., New York, 1924, p. 71.
-
1. Leslie, F. E.: *Recreational Therapy for the Mentally Ill*. U. S. Veterans Bureau Medical Bulletin, March, 1932.
 2. Marsh, F. C.: *Group Treatment of the Psychoses by the Psychology of the Revival*. *Mental Hygiene*, XV, 328, April, 1931.
 3. Menninger, William C.: *Therapeutic Methods in a Psychiatric Hospital*. *Journal A. M. A.*, USG, No. 7, Aug. 13, 1932, p. 538; 42.
 4. Williams, Jesse F.: *Cultural Aspects of Physical Education*. *Journal of Health and Physical Education*, Vol. III, No. 9, Nov., 1932, p. 20.
 5. Diem, Carl: *Sport for the People*. *Journal of Health and Physical Education*, Vol. III, No. 9, Nov., 1932, p. 24.
 6. Lataret, A.: *Physical Education, Athletics and Mental Hygiene*. *Journal of Health and Physical Education*, Vol. III, No. 9, Nov., 1932, p. 26.
 7. Kano, J.: *The Contribution of Judo to Education*. *Journal of Health and Physical Education*, Vol. III, No. 9, Nov., 1932, p. 37.
 8. Pihkala, L.: *Physical Education in Finland*. *Journal of Health and Physical Education*, Vol. III, No. 9, Nov., 1932, p. 47.
 9. Bellin de Coteau: *The Development of Physical Education in France*. *Journal of Health and Physical Education*, Vol. III, No. 9, Nov., 1932, p. 52.
 10. Davis, John Elsie: *Resocializing Tendencies in Physical Education for the Mentally Ill*. *Mental Hygiene*, Vol. 15, No. 3, July, 1931, p. 554.

A CENSUS OF THE RESIDENT PATIENTS IN THE NEW YORK CIVIL STATE HOSPITALS

BY BENJAMIN MALZBERG

NEW YORK STATE DEPARTMENT OF MENTAL HYGIENE

On April 1, 1930, there were 17 civil State hospitals for the care of patients with mental disease in the State of New York, under the administrative direction of the New York State Department of Mental Hygiene. Each of these hospitals participated in the federal census of population taken on April 1, 1930, and prepared individual statistical schedules for each of the resident patients. Because of the heavy clerical work involved, it is impracticable to take a detailed annual census of the resident patients, and consequently the opportunity afforded by the decennial federal census was taken advantage of. Every institution submitted to the statistical bureau of the Department of Mental Hygiene a schedule for each resident patient, on which was given some of the information prepared for the more detailed federal schedule. The former called for data with respect to sex, age, race, nativity and parentage, marital condition and psychosis. By tabulating these items for the several hospitals, it is possible to make interesting comparisons between them with respect to important characteristics of the hospital populations. An incidental result of such comparisons is the partial explanation afforded of the variations found from institution to institution in the outcome of treatment. In the annual statistical reviews of the Department of Mental Hygiene attention is always directed to such items as rates of recovery and improvement, and death rates, and the variations in these rates in the several institutions. During the year ended June 30, 1930, for example, the average rate of recovery was 18.7 per 100 admissions. Excluding the Psychiatric Institute, the population of which is not comparable with that of the other hospitals in certain important respects, we find that the rate varied from a minimum of 11.8 at Rochester to a maximum of 29.5 at St. Lawrence. The average rate of improvement was 22.1 per 100 admissions, with a minimum of 13.0 at St. Lawrence and a maximum of 35.5 at Binghamton. Even if we assume that subjective evaluations are present, it is still evi-

dent that the range of variation is too great to be explained entirely in this manner. The death rate is an objective measure, but this, too, shows wide variations. In 1930 the minimum death rate was 32.2 per 1,000 average daily population, and the maximum, 273.8; these rates occurring at Harlem Valley and Brooklyn respectively. The average death rate for all institutions was 82.2. It is known, however, that outcome of treatment is influenced by the sex, the age and the psychosis of the patient, and as their relative distributions vary from one hospital to another, the results of treatment may differ accordingly. Another important cause of variation is found in the fact that some hospitals—Brooklyn for example—are receiving stations for many patients in a condition of advanced physical disease, among whom there is consequently an extremely high death rate. Furthermore, prior to the opening of Rockland and Pilgrim State Hospitals, there were many transfers of patients from the metropolitan to the up-State hospitals. This shifting of

TABLE I. RESIDENT PATIENTS IN THE NEW YORK CIVIL STATE HOSPITALS, APRIL 1, 1930,
CLASSIFIED ACCORDING TO SEX

State hospitals	Males		Females		Total	
	Number	Per cent	Number	Per cent	Number	Per cent
Binghamton	1,615	57.1	1,212	42.9	2,827	100.0
Brooklyn	649	44.1	822	55.9	1,471	100.0
Buffalo	1,020	45.3	1,233	54.7	2,253	100.0
Central Islip	3,502	55.9	2,762	44.1	6,264	100.0
Creedmoor	846	42.8	1,130	57.2	1,976	100.0
Gowanda	696	58.0	503	42.0	1,199	100.0
Harlem Valley	773	47.6	852	52.4	1,625	100.0
Hudson River	1,846	45.2	2,238	54.8	4,084	100.0
Kings Park	2,761	48.7	2,911	51.3	5,672	100.0
Manhattan	2,988	42.4	4,065	57.6	7,053	100.0
Marcy	447	45.4	538	54.6	985	100.0
Middletown	1,359	45.4	1,633	54.6	2,992	100.0
Psychiatric Institute.	31	51.7	29	48.3	60	100.0
Rochester	849	43.7	1,092	56.3	1,941	100.0
St. Lawrence	1,011	44.4	1,264	55.6	2,275	100.0
Utica	804	47.0	908	53.0	1,712	100.0
Willard	1,233	48.1	1,333	51.9	2,566	100.0
Total	22,430	47.8	24,525	52.2	46,955	100.0

patients, among whom chronics predominate, is closely related to subsequent rates of recovery, improvement and death.

In the following analysis we shall consider the population of the several hospitals under the categories of sex, age, race, nativity and parentage, and psychosis.

SEX

Table I summarizes the data with respect to sex.

Of the 46,955 patients in residence on April 1, 1930, 22,430, or 47.8 per cent, were males, and 24,525, or 52.2 per cent, females. The total of females has always exceeded that of the males throughout the recorded history of the department. This excess results largely from the greater longevity of the females, and their consequent accumulation in the hospitals. Despite this characteristic distribution of the sexes, there were several exceptions. At Binghamton, Central Islip, Gowanda, and the Psychiatric Institute the

TABLE II. AVERAGE AGES, WITH STANDARD DEVIATIONS, OF PATIENTS IN THE NEW YORK CIVIL STATE HOSPITALS, APRIL 1, 1930

State hospitals	Average age (years)			Standard deviation (years)		
	Males	Females	Total	Males	Females	Total
Binghamton	52.3	54.4	53.2	13.9	14.8	14.4
Brooklyn	50.1	50.4	50.2	17.5	18.2	17.9
Buffalo	50.2	52.9	51.7	14.0	14.7	14.5
Central Islip	45.5	46.5	45.9	14.2	14.1	14.2
Creedmoor	45.0	46.0	45.6	15.0	15.4	15.2
Gowanda	48.6	53.3	50.5	14.4	14.6	14.7
Harlem Valley	46.5	49.3	48.0	12.6	12.1	12.4
Hudson River	51.0	53.5	52.4	14.2	14.4	14.3
Kings Park	41.5	46.7	44.2	13.5	14.3	14.2
Manhattan	45.0	48.6	47.1	15.1	15.0	15.1
Marey	49.9	54.0	52.1	11.4	12.8	12.2
Middletown	48.5	54.1	51.6	14.0	14.1	14.3
Psychiatric Institute.	26.9	23.0	25.0	14.1	6.6	11.4
Rochester	52.3	54.4	53.5	15.4	15.2	15.3
St. Lawrence	53.6	56.2	55.0	14.4	13.7	14.4
Utica	49.5	51.6	50.7	14.7	15.1	14.9
Willard	53.3	54.5	53.9	14.5	14.3	14.4
Total	47.8	50.7	49.3	14.8	15.0	15.0

males were in excess, representing 57.1, 55.9, 58.0 and 51.7 per cent, respectively of the resident populations. Manhattan and Creedmoor had the highest percentages of females, with 57.6 and 57.2, respectively.

AGE

The age distributions of the several institutions are shown in detail in Tables V and VI, and are summarized in the accompanying table.

The resident females were older than the males, the average ages being 50.7 and 47.8 years, respectively. The only exception within the individual institutions occurred at the Psychiatric Institute, where the males averaged 26.9 years, the females 23.0 years. The general average for both sexes combined was 49.3 years. The Psychiatric Institute with 25.0 years, had the lowest average age. This institution, however, is not comparable with the others. Kings Park had the next lowest average, with 44.2 years. St. Lawrence showed the highest average age, 55.0 years. Binghamton, Hudson River, Marcy, Rochester and Willard had high average ages, with 53.2, 52.4, 52.1, 53.5 and 53.9 years, respectively. Central Islip, Creedmoor, Kings Park, and Manhattan had low average ages with 45.9, 45.6, 44.2 and 47.1 years, respectively. Males varied from a minimum of 41.5 years at Kings Park to a maximum of 53.6 years at St. Lawrence; females varied from a minimum of 46.0 years at Creedmoor to a maximum of 56.2 years at St. Lawrence. (The still lower average ages at the Psychiatric Institute are not considered, because of the special types of patients at this institution.)

Of additional interest is the question of the range of variation in age. This is usually measured about the mean age in terms of a unit known as the standard deviation. The larger the standard deviation, especially in comparison with the mean, the greater is the variation within the group. For all institutions combined the variation amounted to 15.0 years. The maximum, 17.9 years, occurred at Brooklyn, the minimum, 11.4, at the Psychiatric Institute. Marcy, too, had a small variation of only 12.2 years. Females showed a slightly greater absolute variation than males, these being 15.0 and 14.8 years, respectively. If we compare these with the corresponding average ages, however, we find that the males had a

relatively greater variation, for the percentage deviations were 30.9 for males, and 29.6 for females.

In general the resident patients in the metropolitan hospitals were younger than those in the up-State hospitals. This is due in part to the larger proportions of the young natives of foreign parentage in the former group, and to differences in the relative distributions of the several groups of psychoses.

The hospital population has been growing older from decade to decade, as is clearly seen in the accompanying table, which gives the age distribution on January 1, 1904, June 1, 1915, and on April 1, 1930.

TABLE III. RESIDENT PATIENTS IN HOSPITALS FOR MENTAL PATIENTS IN THE STATE OF NEW YORK, CLASSIFIED ACCORDING TO AGE

Age (years)	Resident patients,* January 1, 1904		Resident patients,† June 1, 1915		Resident patients,† April 1, 1930	
	Number	Per cent	Number	Per cent	Number	Per cent
Under 15	6	**	....	....	77	0.2
15-19	238	0.9	367‡	1.1‡	460	1.0
20-24	958	3.7	1,235	3.7	1,498	3.2
25-29	1,882	7.2	2,230	6.7	2,663	5.7
30-34	2,611	10.0	3,014	9.1	3,855	8.2
35-39	3,117	11.9	3,683	11.1	5,143	11.0
40-44	3,461	13.2	4,068	12.3	5,703	12.1
45-49	3,166	12.1	4,146	12.5	5,609	11.9
50-54	2,813	10.7	3,794	11.4	5,330	11.4
55-59	2,270	8.7	3,317	10.0	4,854	10.3
60-64	1,908	7.3	2,591	7.8	4,076	8.7
65-69	1,310	5.0	1,894	5.7	3,195	6.8
70-74	900	3.4	1,263	3.8	2,180	4.6
75-79	540	2.1	770	2.3	1,358	2.9
80 and over	378	1.4	566	1.7	896	1.9
Unknown	618	2.4	246	0.7	58	0.1
Total	26,176	100.0	33,184	100.0	46,955	100.0

*In all hospitals for mental patients. **Less than 0.05 per cent.

†Civil State hospitals only. ‡Includes all under 20.

The average age of the resident patients on January 1, 1904 was 47.0 years. This was based upon the patients in both State and private institutions, and is probably somewhat higher than would be the average of those in the civil State hospitals only. On June 1,

1915, the average age of the resident patients in the civil State hospitals was 48.0 years, an increase of a year. By April 1, 1930, there had been a further increase to an average of 49.3 years. An examination of Table III shows that between 1904 and 1915 there had been a relative increase in every age group above 45 years of age. Between 1915 and 1930 every age group above 55 years showed a relative increase. Thus the patients with mental disease share in the increased longevity of the general population. An additional explanation, however, lies in the increasing number of patients in the group of psychoses with cerebral arteriosclerosis, a disease limited generally to those of advanced age.

RACE, NATIVITY AND PARENTAGE

Race and nativity and parentage of the white resident patients are shown in detail in Tables VII and VIII.

Of the 46,955 resident patients, 45,241, or 96.4 per cent, were white; 1,636, or 3.5 per cent, were negroes, and 78, or 0.1 per cent, were of other races, the latter group consisting principally of Chinese and Japanese. Of the males 96.5 per cent were white, compared with a corresponding percentage of 96.2 among the females. The latter were relatively in excess in the percentage of negroes, with 3.8 per cent, as against 3.2 per cent among the males. In the other races there was a marked preponderance of males, the latter accounting for 67 of the 78 cases.

The accompanying table shows rates of resident patients per 100,000 of corresponding general population.

The resident patients provided a rate of 373.0 per 100,000 general population. Whites provided a rate of 372.3 per 100,000, compared with 396.3 per 100,000 among negroes. The other races had a rate of 312.5, but this cannot be considered significant in view of the small number of females in this group and the consequent unreliability of the rate. Native whites had a lower rate than foreign whites, the rates being 293.1 and 594.9, respectively, the latter being the highest rate in any of the groups. Native whites of native parentage had the lowest rate of all, namely 252.5. Native whites of foreign parentage, and those of mixed parentage had rates of 336.4 and 325.2, respectively. Females have higher residence rates

than males in every race and nativity group with the exception of "other" races, and in this instance, as already noted, the female rate cannot be regarded as significant. Part of the variation in rate among the several groups, it should be noted, is due to differences in age distributions.

TABLE IV. RESIDENT PATIENTS IN THE NEW YORK CIVIL STATE HOSPITALS ON APRIL 1, 1930, CLASSIFIED BY RACE, NATIVITY AND PARENTAGE, AND RATE PER 100,000 GENERAL POPULATION OF SAME RACE, NATIVITY AND PARENTAGE

Race, nativity and parentage	Number			Rate per 100,000 of general population		
	Males	Females	Total	Males	Females	Total
Total population	22,430	24,525	46,955	355.3	390.8	373.0
Total white*	21,648	23,593	45,241	355.2	389.6	372.3
Total native white†	12,746	13,508	26,254	287.0	299.0	293.1
Native white of native parentage	5,494	5,801	11,295	245.6	259.4	252.5
Native white of foreign parentage	5,529	5,745	11,274	334.7	338.0	336.4
Native white of mixed parentage	1,723	1,962	3,685	312.0	337.7	325.2
Foreign-born white	8,902	10,085	18,987	538.5	655.6	594.9
Negro	715	921	1,636	358.4	431.7	396.3
Other races	67	11	78	361.5	171.2	312.5

*The whites of unknown nativity were distributed among those of known nativity in the same ratio as the latter.

†The native whites of unknown parentage were distributed among those of known parentage in the same ratio as the latter.

Utica had the highest percentage of whites, namely, 99.7; Harlem Valley the lowest with 93.4. Buffalo, Gowanda, Rochester and St. Lawrence all had relatively high percentages of whites. Central Islip, Creedmoor, Kings Park and Manhattan had relatively low percentages. Conversely Harlem Valley had the highest percentage of negroes, Utica the lowest. These differences are due entirely to the fact, that negroes in the State of New York are largely concentrated in New York City, and those hospitals which receive patients from the metropolitan district, consequently have higher percentages of negroes, than have the up-State hospitals. The con-

centration of Chinese and Japanese in the metropolitan district likewise accounts for the fact that they are found predominantly in the hospitals that receive cases from New York City.

Of the 45,241 white patients resident on April 1, 1930, 26,077 were native, and 18,859 foreign-born, constituting 55.5 and 40.2 per cent, respectively, of the total resident population. There was a sex difference, 56.4 per cent, of the resident males being native whites, compared with 54.8 per cent of the females. Contrariwise, 40.9 per cent of the resident females were foreign whites, compared with only 39.4 per cent of the males. The Psychiatric Institute and Hospital reported 81.7 per cent of its resident population as native. This constitutes the maximum. As already noted, however, this institution receives a somewhat specialized population, and therefore is not directly comparable with the other institutions. Of the latter, Utica with 74.5 per cent, had the maximum rate of native whites, Harlem Valley the lowest with 36.8 per cent; Binghamton, Buffalo, Gowanda, Hudson River, Middletown, Rochester, St. Lawrence and Willard all had percentages above the general average; Central Islip and Manhattan were especially low. The distribution of the foreign-born whites was in the reverse order. Thus Harlem Valley with 56.5 per cent, had the maximum, Utica, with 25.0, the minimum (exclusive of the Psychiatric Institute). Central Islip and Manhattan had percentages of foreign-born well above the average, whereas Binghamton, Buffalo, Gowanda, Hudson River, Middletown, Rochester, St. Lawrence and Willard were well below the average. These differences may again be attributed to the relative distribution of the general population in the State of New York, the foreign-born being represented more heavily in the metropolitan district.

The native whites may be further analyzed according to parentage. Thus of the 26,077 resident native whites, 10,520 were of native parentage, 10,549 of foreign parentage, and 3,448 of mixed parentage, constituting 22.5, 22.4 and 7.4 per cent, respectively, of the total resident population. The maximum percentage of native whites of native parentage occurred at Utica, which had 40.6 per cent. Manhattan had the minimum with the very low rate of 9.4 per cent. Binghamton, Gowanda, Rochester, St. Lawrence and Willard

had relatively high rates. Brooklyn, Central Islip, Creedmoor, Harlem Valley and Kings Park had low percentages.

Native whites of foreign parentage showed smaller percentage variations than the natives of native parentage. Exclusive of the Psychiatric Institute, the maximum percentage, 28.8, occurred at Kings Park, closely followed by Brooklyn and Creedmoor with 28.7 and 26.9 per cent, respectively. The minimum percentage, 14.5, occurred at Binghamton. Harlem Valley, Marcy, Middletown and Willard had relatively low percentages.

The highest percentage of natives with mixed parentage occurred at the Psychiatric Institute, with 15.0, followed by Rochester with 11.9. Harlem Valley had the minimum with 3.7 per cent. Buffalo, Marcy, St. Lawrence and Utica had relatively high percentages, Binghamton, Central Islip and Manhattan relatively low ones. On the whole we find that the metropolitan hospitals had low rates of native and mixed parentage, and high rates of foreign parentage. These results again follow from the relative distribution of native and foreign parents in the general population of the State.

PSYCHOSES

Tables IX and X give the distribution of the psychoses in each of the hospitals. (See pages 184 to 187.)

Of the 46,955 resident patients, 28,552, or 60.8 per cent, were cases of dementia præcox. Manic-depressive psychoses included 4,257 cases, or 9.1 per cent. These two groups of psychoses accounted for almost 70 per cent of all the resident patients. Of the remaining 30 per cent, senile psychoses, psychoses with cerebral arteriosclerosis, general paralysis, alcoholic psychoses, and psychoses with mental deficiency included 18.1 per cent. There are some very marked variations from institution to institution, however. The percentage of patients with dementia præcox varied from a minimum of 34.4 at Brooklyn to a maximum of 81.7 at Marcy. The population of the latter hospital is composed largely of transfers from other hospitals. Manhattan, Rochester, Utica and Willard had relatively low percentages of dementia præcox patients, whereas Harlem Valley, Kings Park, Middletown and St. Lawrence had relatively high percentages. The manic-depressive

176 CENSUS OF RESIDENT PATIENTS IN NEW YORK CIVIL STATE HOSPITALS

TABLE V. RESIDENT PATIENTS IN THE NEW YORK CIVIL STATE HOSPITALS, APRIL 1, 1930,
CLASSIFIED ACCORDING TO AGE

Age, (years)	Total			Binghamton			Brooklyn			Buffalo		
	M.	F.	T.	M.	F.	T.	M.	F.	T.	M.	F.	T.
Under 5	1	..	1	..	..	..	..	..	..	..	..	..
5-9	14	4	18	..	..	..	..	..	..	..	..	..
10-14	34	24	58	..	..	..	..	..	..	1	1	2
15-19	272	188	460	10	4	14	16	14	30	2	7	9
20-24	894	604	1,498	28	16	44	44	39	83	19	16	35
25-29	1,508	1,155	2,663	48	37	85	37	63	100	51	47	98
30-34	1,963	1,892	3,855	89	78	167	49	92	141	74	74	148
35-39	2,573	2,570	5,143	147	101	248	62	75	137	117	97	214
40-44	2,829	2,874	5,703	191	102	293	60	76	136	135	146	281
45-49	2,786	2,823	5,609	207	129	336	59	62	121	130	152	282
50-54	2,450	2,880	5,330	196	139	335	63	69	132	118	157	275
55-59	2,176	2,678	4,854	206	149	355	52	68	120	94	142	236
60-64	1,781	2,295	4,076	169	147	316	45	66	111	120	112	232
65-69	1,388	1,807	3,195	151	117	268	64	57	121	69	117	186
70-74	889	1,291	2,180	85	83	168	45	47	92	48	81	129
75-79	535	823	1,358	57	70	127	32	47	79	29	47	76
80-84	214	374	588	18	26	44	16	28	44	7	23	30
85-89	68	167	235	4	10	14	5	15	20	6	10	16
90-94	11	43	54	3	2	5	..	2	2	..	4	4
95-99	5	11	16	..	..	..	..	2	2	..	..	..
100-104	2	1	3	..	..	..	..	..	..	..	..	..
Unknown	37	21	58	6	2	8	..	..	..	..	..	..
Total	22,430	24,525	46,955	1,615	1,212	2,827	649	822	1,471	1,020	1,233	2,253

TABLE V. RESIDENT PATIENTS IN THE NEW YORK CIVIL STATE HOSPITALS, APRIL 1, 1930,
CLASSIFIED ACCORDING TO AGE—(Continued)

Age, (years)	Kings Park			Manhattan			Marcy			Middletown		
	M.	F.	T.	M.	F.	T.	M.	F.	T.	M.	F.	T.
Under 5 .....	..	..	..	..	..	..	..	..	..	..	..	..
5-9	11	3	14	..	..	..	..	..	..	..	..	..
10-14	21	14	35	8	2	10	..	..	..	..	..	..
15-19	64	35	99	54	48	102	..	1	1	11	5	16
20-24	148	103	251	200	141	341	1	1	2	35	21	56
25-29	288	169	457	257	266	523	12	9	21	86	38	124
30-34	381	300	681	339	334	673	27	19	46	106	95	201
35-39	498	390	888	341	468	809	46	45	91	155	124	279
40-44	373	382	755	393	519	912	73	58	131	178	165	343
45-49	284	375	659	340	468	808	77	77	154	200	199	399
50-54	234	346	580	284	445	729	74	75	149	133	196	329
55-59	169	273	441	246	393	639	53	77	130	147	215	362
60-64	126	201	327	186	365	551	38	74	112	113	190	303
65-69	95	145	240	135	264	399	27	46	73	94	172	266
70-74	42	83	125	103	176	279	12	25	37	56	107	163
75-79	13	49	62	72	104	176	3	18	21	29	62	91
80-84	12	28	40	21	37	58	2	8	10	5	24	29
85-89	2	10	12	6	22	28	2	2	4	4	15	19
90-94	1	3	4	1	5	6	..	1	1	1	5	6
95-99 .....	..	2	2	..	2	2	..	..	..	..	..	..
100-104 .....	..	..	..	..	1	1	..	..	..	..	..	..
Unknown .....	..	..	..	2	5	7	..	2	2	6	..	6
Total	2,761	2,911	5,672	2,988	4,065	7,053	447	538	985	1,359	1,633	2,992

TABLE V. RESIDENT PATIENTS IN THE NEW YORK CIVIL STATE HOSPITALS, APRIL 1, 1930,
CLASSIFIED ACCORDING TO AGE—(Continued)

Central Islip			Creedmoor			Gowanda			Harlem Valley			Hudson River		
M.	F.	T.	M.	F.	T.	M.	F.	T.	M.	F.	T.	M.	F.	T.
..
..
2	2	4	..	..	..	..	..	..	..	..	..	..	..	..
57	23	80	14	15	29	5	1	6	2	1	3	9	8	17
194	98	292	50	45	95	30	10	40	11	7	18	36	32	68
286	193	479	92	98	190	41	15	56	53	25	78	82	61	143
321	309	630	92	146	238	54	32	86	79	76	155	128	117	245
438	364	802	93	165	258	69	42	111	101	96	197	186	207	393
479	398	877	109	136	245	89	55	144	140	125	265	208	244	452
453	329	782	92	117	209	96	51	147	111	130	241	232	251	483
390	283	673	89	108	197	82	72	154	80	118	198	250	289	539
316	258	574	63	79	142	78	54	132	72	99	171	211	290	501
227	194	421	48	49	97	47	59	106	57	81	138	173	251	424
163	142	305	49	69	118	50	41	91	29	50	79	148	181	329
96	95	191	29	55	84	29	36	65	23	26	49	83	149	232
50	46	96	17	28	45	14	25	39	8	13	21	62	83	145
20	14	34	5	13	18	7	4	11	5	3	8	27	52	79
5	8	13	1	6	7	3	4	7	..	..	..	6	16	22
1	3	4	1	1	2	..	2	2	..	..	..	1	7	8
2	3	5	..	..	..	..	..	..	..	..	..	..	..	..
1	..	1	..	..	..	..	..	..	..	..	..	..	..	..
1	..	1	2	..	2	2	..	2	2	2	4	4	..	4
<hr/>														
3,502	2,762	6,264	846	1,130	1,976	696	503	1,199	773	852	1,625	1,846	2,238	4,084

TABLE V. RESIDENT PATIENTS IN THE NEW YORK CIVIL STATE HOSPITALS, APRIL 1, 1930,
CLASSIFIED ACCORDING TO AGE—(Concluded)

Psychiatric Institute			Rochester			St. Lawrence			Utica			Willard		
M.	F.	T.	M.	F.	T.	M.	F.	T.	M.	F.	T.	M.	F.	T.
1	..	1	..	..	..	..	..	..	..	..	..	..	..	..
3	1	4	..	..	..	..	..	..	..	..	..	..	..	..
1	3	4	1	..	1	..	1	1	..	..	..	..	1	1
6	4	10	7	7	14	5	1	6	4	10	14	6	4	10
6	10	16	14	18	32	17	11	28	36	24	60	25	12	37
3	7	10	31	31	62	41	28	69	49	30	79	51	38	89
2	3	5	57	58	115	52	50	102	51	49	100	62	60	122
3	1	4	88	87	175	69	84	153	74	110	184	86	114	200
2	..	2	93	119	212	95	118	213	92	105	197	119	126	245
2	..	2	119	110	229	118	123	241	114	104	218	152	146	298
..	..	..	83	129	212	131	157	288	93	102	195	150	195	345
2	..	2	91	136	227	125	187	312	90	95	185	162	163	325
..	..	..	79	105	184	130	152	282	70	89	159	153	160	313
..	..	..	53	108	161	96	121	217	61	74	135	104	103	207
..	..	..	57	73	130	68	104	172	38	55	93	75	96	171
..	..	..	44	61	105	32	65	97	21	38	59	52	67	119
..	..	..	26	38	64	18	34	52	6	14	20	19	28	47
..	..	..	5	11	16	6	19	25	3	5	8	10	14	24
..	..	..	1	..	1	1	3	4	..	3	3	..	2	2
..	..	..	..	..	..	2	1	3	..	..	..	1	1	2
..	..	..	..	..	..	..	..	..	1	..	1	..	..	..
..	..	..	..	1	1	5	5	10	1	1	2	6	3	9
<hr/>														
31	29	60	849	1,092	1,941	1,011	1,264	2,275	804	908	1,712	1,233	1,333	2,566

TABLE VI. PERCENTAGE DISTRIBUTION OF RESIDENT PATIENTS IN THE NEW YORK CIVIL STATE HOSPITALS, APRIL 1, 1930, CLASSIFIED ACCORDING TO AGE

[illegible]

TABLE VI. PERCENTAGE DISTRIBUTION OF RESIDENT PATIENTS IN THE NEW YORK CIVIL STATE HOSPITALS, APRIL 1, 1930, CLASSIFIED ACCORDING TO AGE—(Continued)

[illegible]

TABLE VI. PERCENTAGE DISTRIBUTION OF RESIDENT PATIENTS IN THE NEW YORK CIVIL STATE HOSPITALS, APRIL 1, 1930, CLASSIFIED ACCORDING TO AGE—(Continued)

Central Islip			Creedmoor			Gowanda			Harlem Valley			Hudson River		
M.	F.	T.	M.	F.	T.	M.	F.	T.	M.	F.	T.	M.	F.	T.
..
..
0.1	0.1	0.1	..	..	..	..	..	..	..	..	..	..	..	..
1.6	0.8	1.3	1.7	1.3	1.4	0.7	0.2	0.5	0.3	0.1	0.2	0.4	0.4	0.4
5.5	3.6	4.7	5.9	4.0	4.8	4.3	2.0	3.3	1.4	0.8	1.1	2.0	1.4	1.7
8.2	7.0	7.6	10.9	8.7	9.6	5.9	3.0	4.7	6.9	2.9	4.8	4.4	2.7	3.5
9.2	11.2	10.1	10.9	12.9	12.0	7.8	6.4	7.2	10.2	8.9	9.5	6.9	5.2	6.0
12.5	13.2	12.8	11.0	14.6	13.1	9.9	8.3	9.3	13.1	11.3	12.1	10.1	9.2	9.6
13.7	14.4	14.0	12.9	12.0	12.4	12.8	10.9	12.0	18.1	14.7	16.3	11.3	10.9	11.1
12.9	11.9	12.5	10.9	10.4	10.6	13.8	10.1	12.3	14.4	15.3	14.8	12.6	11.2	11.8
11.1	10.2	10.7	10.5	9.6	10.0	11.8	14.3	12.9	10.3	13.9	12.2	13.5	12.9	13.2
9.0	9.3	9.2	7.4	7.0	7.2	11.2	10.7	11.0	9.3	11.6	10.5	11.4	13.0	12.3
6.5	7.0	6.7	5.7	4.3	4.9	6.8	11.7	8.8	7.4	9.5	8.5	9.4	11.2	10.4
4.7	5.2	4.9	5.8	6.1	6.0	7.2	8.2	7.6	3.8	5.9	4.9	8.0	8.1	8.1
2.8	3.4	3.0	3.4	4.9	4.3	4.2	7.2	5.4	3.0	3.1	3.0	4.5	6.7	5.7
1.4	1.7	1.5	2.0	2.4	2.3	2.0	5.0	3.3	1.0	1.5	1.3	3.4	3.7	3.6
0.6	0.5	0.5	0.6	1.2	0.9	1.0	0.8	0.9	0.6	0.4	0.5	1.5	2.3	1.9
0.1	0.3	0.2	0.1	0.5	0.4	0.5	0.8	0.6	..	..	..	0.3	0.7	0.5
*	0.1	0.1	0.1	0.1	0.1	..	0.4	0.2	..	..	..	0.1	0.3	0.2
0.1	0.1	0.1	..	..	..	..	..	..	..	..	..	..	..	..
*	..	*
*	..	*	0.2	..	0.1	0.3	..	0.2	0.3	0.2	0.2	0.2	..	0.1
100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

TABLE VI. PERCENTAGE DISTRIBUTION OF RESIDENT PATIENTS IN THE NEW YORK CIVIL STATE HOSPITALS, APRIL 1, 1930, CLASSIFIED ACCORDING TO AGE—(Concluded)

Psychiatric Institute			Rochester			St. Lawrence			Utica			Willard		
M.	F.	T.	M.	F.	T.	M.	F.	T.	M.	F.	T.	M.	F.	T.
3.2	..	1.7	..	..	..	..	..	..	..	..	..	..	..	..
9.7	3.5	6.7	..	..	..	..	..	..	..	..	..	..	..	..
3.2	10.3	6.7	0.1	..	0.1	..	0.1	*	..	..	..	..	0.1	*
19.4	13.8	16.7	0.8	0.6	0.7	0.4	0.1	0.3	0.5	1.1	0.8	0.5	0.3	0.4
19.4	34.4	26.7	1.6	1.6	1.6	1.7	0.9	1.2	4.4	2.7	3.5	2.0	0.9	1.4
9.7	24.1	16.7	3.7	2.8	3.2	4.1	2.2	3.0	6.1	3.3	4.6	4.1	2.9	3.4
6.4	10.3	8.3	6.7	5.3	5.9	5.1	4.0	4.5	6.3	5.4	5.9	5.0	4.5	4.8
9.7	3.5	6.7	10.4	8.0	9.0	6.8	6.7	6.7	9.2	12.1	10.7	7.0	8.6	7.8
6.4	..	3.3	11.0	10.9	10.9	9.4	9.3	9.4	11.5	11.6	11.5	9.7	9.4	9.5
6.4	..	3.3	14.0	10.1	11.8	11.7	9.7	10.6	14.2	11.5	12.7	12.3	11.0	11.6
..	..	..	9.8	11.8	10.9	13.0	12.4	12.7	11.6	11.2	11.4	12.2	14.6	13.4
6.4	..	3.3	10.7	12.4	11.7	12.4	14.8	13.7	11.2	10.4	10.8	13.1	12.2	12.7
..	..	..	9.3	9.6	9.4	12.9	12.0	12.4	8.7	9.8	9.3	12.4	12.0	12.2
..	..	..	6.2	9.9	8.3	9.5	9.6	9.5	7.6	8.1	7.9	8.4	7.7	8.1
..	..	..	6.7	6.7	6.7	6.7	8.2	7.6	4.7	6.1	5.4	6.1	7.2	6.7
..	..	..	5.2	5.6	5.4	3.2	5.1	4.3	2.6	4.2	3.4	4.2	5.0	4.6
..	..	..	3.1	3.5	3.3	1.8	2.7	2.3	0.7	1.5	1.2	1.5	2.1	1.8
..	..	..	0.6	1.0	0.8	0.6	1.5	1.1	0.4	0.6	0.5	0.8	1.1	0.9
..	..	..	0.1	..	0.1	0.1	0.2	0.2	..	0.3	0.2	..	0.2	0.1
..	..	..	..	..	..	0.2	0.1	0.1	..	..	..	0.1	0.1	0.1
..	..	..	..	..	..	..	..	..	0.1	..	0.1	..	..	..
..	..	..	..	0.1	0.1	0.4	0.4	0.4	0.1	0.1	0.1	0.5	0.2	0.4
100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

*Less than 0.05 per cent.

180 CENSUS OF RESIDENT PATIENTS IN NEW YORK CIVIL STATE HOSPITALS

TABLE VII. RESIDENT POPULATION IN THE NEW YORK CIVIL STATE HOSPITALS, APRIL 1, 1930, CLASSIFIED ACCORDING TO RACE, NATIVITY AND PARENTAGE

State Hospital	Grand total			Total white			Native white		
							Total		
	M.	F.	T.	M.	F.	T.	M.	F.	T.
Binghamton	1,615	1,212	2,827	1,566	1,177	2,743	924	803	1,727
Brooklyn	649	822	1,471	630	789	1,419	354	432	786
Buffalo	1,020	1,233	2,253	995	1,214	2,209	620	768	1,388
Central Islip	3,502	2,762	6,264	3,362	2,605	5,967	1,690	1,260	2,950
Creedmoor	846	1,130	1,976	820	1,080	1,900	428	561	989
Gowanda	696	503	1,199	681	494	1,175	411	356	767
Harlem Valley	773	852	1,625	724	794	1,518	264	334	598
Hudson River	1,846	2,238	4,084	1,792	2,171	3,963	1,135	1,396	2,531
Kings Park	2,761	2,911	5,672	2,648	2,812	5,460	1,624	1,568	3,192
Manhattan	2,988	4,065	7,053	2,805	3,814	6,619	1,350	1,547	2,897
Marcy	447	538	985	435	527	962	268	315	583
Middletown	1,359	1,633	2,992	1,320	1,577	2,897	883	991	1,874
Psychiatric Institute...	31	29	60	30	29	59	24	25	49
Rochester	849	1,092	1,941	844	1,076	1,920	592	768	1,360
St. Lawrence	1,011	1,264	2,275	1,004	1,248	2,252	724	812	1,536
Utica	804	908	1,712	801	906	1,707	590	685	1,275
Willard	1,233	1,333	2,566	1,191	1,280	2,471	765	810	1,575
Total	22,430	24,525	46,955	21,648	23,593	45,241	12,646	13,431	26,077

TABLE VII. RESIDENT POPULATION IN THE NEW YORK CIVIL STATE HOSPITALS, APRIL 1, 1930, CLASSIFIED ACCORDING TO RACE, NATIVITY AND PARENTAGE—(Continued)

State Hospital	Foreign-born white			White of unknown nativity			Negro		
	M.	F.	T.	T.	M.	F.	M.	F.	T.
Binghamton	612	366	978	30	8	38	45	32	77
Brooklyn	275	357	632	1	..	1	18	33	51
Buffalo	372	442	814	3	4	7	21	18	39
Central Islip	1,670	1,345	3,015	2	..	2	118	156	274
Creedmoor	385	517	902	7	2	9	25	50	75
Gowanda	266	137	403	4	1	5	13	5	18
Harlem Valley	458	460	918	2	..	2	44	58	102
Hudson River	587	689	1,276	70	86	156	52	67	119
Kings Park	1,023	1,243	2,266	1	1	2	109	99	208
Manhattan	1,449	2,262	3,711	6	5	11	172	251	423
Marcy	165	210	375	2	2	4	10	11	21
Middletown	431	577	1,008	6	9	15	32	55	87
Psychiatric Institute ..	6	4	10	..	..	..	1	..	1
Rochester	251	307	558	1	1	2	5	16	21
St. Lawrence	261	425	686	19	11	30	6	16	22
Utica	209	219	428	2	2	4	3	1	4
Willard	410	467	877	16	3	19	41	53	94
Total	8,830	10,027	18,857	172	135	307	715	921	1,636

TABLE VII. RESIDENT POPULATION IN THE NEW YORK CIVIL STATE HOSPITALS, APRIL 1, 1930, CLASSIFIED ACCORDING TO RACE, NATIVITY AND PARENTAGE—(Continued)

Native white											
Of native parentage			Of foreign parentage			Of mixed parentage			Parentage unknown		
M.	F.	T.	M.	F.	T.	M.	F.	T.	M.	F.	T.
515	529	1,044	250	161	411	70	73	144	89	39	128
111	129	240	189	233	422	40	63	103	14	7	21
273	316	589	252	311	563	93	136	229	2	5	7
610	490	1,100	869	628	1,497	182	113	295	29	29	58
122	149	271	234	296	530	56	104	160	16	12	28
208	182	390	146	121	267	47	43	90	10	10	20
109	123	232	135	171	306	20	40	60	..	..	..
488	601	1,089	392	443	835	157	215	372	98	137	235
586	491	1,077	811	821	1,632	221	240	461	6	16	22
297	368	665	754	876	1,630	164	201	365	135	102	237
125	141	266	80	109	189	57	53	110	6	12	18
348	388	736	263	269	532	100	112	212	172	222	394
7	8	15	12	13	25	5	4	9	..	..	..
248	334	582	219	273	492	103	128	231	22	33	55
388	398	786	161	216	377	113	130	243	62	68	130
326	369	695	174	198	372	82	97	179	8	21	29
370	423	793	221	248	469	99	86	185	75	53	128
5,131	5,439	10,570	5,162	5,387	10,549	1,609	1,839	3,448	744	766	1,510

TABLE VII. RESIDENT POPULATION IN THE NEW YORK CIVIL STATE HOSPITALS, APRIL 1, 1930, CLASSIFIED ACCORDING TO RACE, NATIVITY AND PARENTAGE—(Concluded)

Indian			Chinese			Japanese			Other		
M.	F.	T.	M.	F.	T.	M.	F.	T.	M.	F.	T.
..	3	3	1	..	1	3	..	3	..	..	..
..	..	..	1	..	1	..	..	..	..	..	..
3	1	4	1	..	1	..	..	..	..	..	..
..	..	..	13	..	13	9	1	10	..	..	..
..	..	..	..	..	..	1	..	1	..	..	..
2	4	6	..	..	..	..	..	..	..	..	..
..	..	..	2	..	2	2	..	2	1	..	1
..	..	..	..	..	..	1	..	1	1	..	1
..	..	..	1	..	1	2	..	2	1	..	1
..	..	..	4	..	4	2	..	2	5	..	5
2	..	2	..	..	..	..	..	..	..	..	..
..	..	..	2	..	2	1	1	2	4	..	4
..
..
1	..	1	..	..	..	..	..	..	..	..	..
..	1	1	..	..	..	..	..	..	..	..	..
..
8	9	17	25	..	25	21	2	23	13	..	13

182 CENSUS OF RESIDENT PATIENTS IN NEW YORK CIVIL STATE HOSPITALS

TABLE VIII. PERCENTAGE DISTRIBUTION OF RESIDENT POPULATION IN THE NEW YORK CIVIL STATE HOSPITALS, APRIL 1, 1930, CLASSIFIED ACCORDING TO RACE, NATIVITY AND PARENTAGE

	Grand total			Total white			Native white		
							Total		
	M.	F.	T.	M.	F.	T.	M.	F.	T.
Binghamton	100.0	100.0	100.0	97.0	97.2	97.1	57.2	66.3	61.1
Brooklyn	100.0	100.0	100.0	97.0	96.0	96.5	54.5	52.6	53.4
Buffalo	100.0	100.0	100.0	97.5	98.4	98.0	60.8	62.3	61.6
Central Islip	100.0	100.0	100.0	96.0	94.3	95.3	48.2	45.6	47.1
Creedmoor	100.0	100.0	100.0	96.9	95.6	96.2	50.6	49.7	50.1
Gowanda	100.0	100.0	100.0	97.8	98.2	98.0	59.1	70.8	64.0
Harlem Valley	100.0	100.0	100.0	93.7	93.2	93.4	34.2	39.2	36.8
Hudson River	100.0	100.0	100.0	97.1	97.0	97.0	61.5	62.4	62.0
Kings Park	100.0	100.0	100.0	95.9	96.6	96.3	58.8	53.9	56.3
Manhattan	100.0	100.0	100.0	93.9	93.8	93.8	45.2	38.1	41.1
Marcy	100.0	100.0	100.0	97.3	98.0	97.7	59.7	58.6	59.1
Middletown	100.0	100.0	100.0	97.1	96.6	96.8	65.0	60.7	62.6
Psychiatric Institute ...	100.0	100.0	100.0	96.8	100.0	98.3	77.4	86.2	81.7
Rochester	100.0	100.0	100.0	99.4	98.5	98.9	69.7	70.3	70.1
St. Lawrence	100.0	100.0	100.0	99.3	98.7	99.0	71.6	64.2	67.5
Utica	100.0	100.0	100.0	99.6	99.8	99.7	73.4	75.5	74.5
Willard	100.0	100.0	100.0	96.6	96.0	96.3	62.0	60.8	61.4
Total	100.0	100.0	100.0	96.5	96.2	96.4	56.4	54.8	55.5

TABLE VIII. PERCENTAGE DISTRIBUTION OF RESIDENT POPULATION IN THE NEW YORK CIVIL STATE HOSPITALS, APRIL 1, 1930, CLASSIFIED ACCORDING TO RACE, NATIVITY AND PARENTAGE (—Continued)

	Foreign-born white			White of unknown nativity			Negro		
	M.	F.	T.	M.	F.	T.	M.	F.	T.
Binghamton	38.0	30.2	34.7	1.9	0.7	1.4	2.7	2.6	2.7
Brooklyn	42.4	43.4	43.0	0.2	..	0.1	2.8	4.0	3.4
Buffalo	36.4	35.8	36.1	0.3	0.3	0.3	2.1	1.5	1.7
Cntral Islip	47.7	48.7	48.2	0.1	..	*	3.4	5.7	4.4
Creedmoor	45.5	45.7	45.6	0.8	0.2	0.5	2.9	4.4	3.8
Gowanda	38.2	27.2	33.6	0.6	0.2	0.4	1.9	1.0	1.5
Harlem Valley	59.3	54.0	56.5	0.2	..	0.1	5.7	6.8	6.3
Hudson River	31.8	30.8	31.2	3.8	3.8	3.8	2.8	3.0	2.9
Kings Park	37.1	42.7	40.0	*	*	*	4.0	3.4	3.7
Manhattan	48.5	55.6	52.6	0.2	0.1	0.1	5.8	6.2	6.0
Marcy	37.1	39.0	38.2	0.4	0.4	0.4	2.2	2.0	2.1
Middletown	31.7	35.3	33.7	0.4	0.6	0.5	2.4	3.4	2.9
Psychiatric Institute ..	19.4	13.8	16.7	..	..	..	3.2	..	1.7
Rochester	29.6	28.1	28.7	0.1	0.1	0.1	0.6	1.5	1.1
St. Lawrence	25.8	33.6	30.2	1.9	0.9	1.3	0.6	1.3	1.0
Utica	26.0	24.1	25.0	0.2	0.2	0.2	0.4	0.1	0.2
Willard	33.3	35.0	34.2	1.3	0.2	0.7	3.3	4.0	3.7
Total	39.4	40.9	40.2	0.8	0.6	0.7	3.2	3.8	3.5

TABLE VIII. PERCENTAGE DISTRIBUTION OF RESIDENT POPULATION IN THE NEW YORK CIVIL STATE HOSPITALS, APRIL 1, 1930, CLASSIFIED ACCORDING TO RACE, NATIVITY AND PARENTAGE(—Continued)

Native white											
Of native parentage			Of foreign parentage			Of mixed parentage			Parentage unknown		
M.	F.	T.	M.	F.	T.	M.	F.	T.	M.	F.	T.
31.8	43.7	36.9	15.5	13.3	14.5	4.4	6.0	5.1	5.5	3.3	4.6
17.1	15.7	16.3	29.1	28.3	28.7	6.2	7.7	7.0	2.2	0.9	1.4
26.8	25.6	26.1	24.7	25.2	25.0	9.1	11.0	10.2	0.2	0.4	0.3
17.4	17.7	17.6	24.8	22.7	23.9	5.2	4.1	4.7	0.8	1.1	0.9
14.4	13.1	13.7	27.7	26.3	26.9	6.6	9.3	8.1	1.9	1.1	1.4
29.9	36.2	32.5	21.0	24.1	22.3	6.8	8.5	7.5	1.4	2.0	1.7
14.1	14.4	14.3	17.5	20.1	18.8	2.6	4.7	3.7	..	..	..
26.4	26.9	26.7	21.3	19.8	20.4	8.5	9.6	9.1	5.3	6.1	5.8
21.2	16.9	19.0	29.4	28.2	28.8	8.0	8.3	8.1	0.2	0.5	0.4
10.0	9.1	9.4	25.2	21.6	23.1	5.5	4.9	5.2	4.5	2.5	3.4
28.0	26.2	27.0	18.1	20.3	19.3	12.5	9.9	11.1	1.1	2.2	1.7
25.6	23.7	24.6	19.4	16.5	17.8	7.4	6.9	7.1	12.7	13.6	13.2
22.6	27.6	25.0	38.7	44.8	41.7	16.1	13.8	15.0	..	..	..
29.2	30.6	30.0	25.8	25.0	25.3	12.1	11.7	11.9	2.6	3.0	2.8
38.4	31.4	34.5	15.9	17.1	16.6	11.2	10.3	10.7	6.1	5.4	5.7
40.5	40.6	40.6	21.7	21.7	21.7	10.2	10.8	10.5	1.0	2.3	1.7
29.9	31.7	30.9	17.9	18.6	18.3	8.1	6.5	7.2	6.1	4.0	5.0
22.9	22.2	22.5	23.0	22.0	22.4	7.2	7.5	7.4	3.3	3.1	3.2

TABLE VIII. PERCENTAGE DISTRIBUTION OF RESIDENT POPULATION IN THE NEW YORK CIVIL STATE HOSPITALS, APRIL 1, 1930, CLASSIFIED ACCORDING TO RACE, NATIVITY AND PARENTAGE(—Concluded)

Indian			Chinese			Japanese			Other		
M.	F.	T.	M.	F.	T.	M.	F.	T.	M.	F.	T.
..	0.2	0.1	0.1	..	*	0.2	..	0.1	..	..	..
..	..	..	0.2	..	0.1	..	..	..	..	..	..
0.3	0.1	0.2	0.1	..	*	..	..	..	..	..	..
..	..	..	0.4	..	0.2	0.2	*	0.1	..	..	..
..	..	..	..	..	..	0.1	..	0.1	..	..	..
0.3	0.8	0.5	..	..	..	..	..	..	..	..	..
..	..	..	0.2	..	0.1	0.2	..	0.1	0.1	..	0.1
..	..	..	..	..	..	0.1	..	*	0.1	..	*
..	..	..	*	..	*	0.1	..	*	*	..	*
..	..	..	0.1	..	0.1	0.1	..	*	0.2	..	0.1
0.4	..	0.2	..	..	..	..	..	..	..	..	..
..	..	..	0.1	..	0.1	0.1	0.1	0.1	0.3	..	0.1
..
..
0.1	..	*	..	..	..	..	..	..	..	..	..
..	0.1	0.1	..	..	..	..	..	..	..	..	..
..	..	..	..	..	..	..	..	..	0.1	..	*
*	*	*	0.1	..	0.1	0.1	*	*	0.1	..	*

*Less than 0.05 per cent.

184 CENSUS OF RESIDENT PATIENTS IN NEW YORK CIVIL STATE HOSPITALS

TABLE IX. RESIDENT PATIENTS IN THE NEW YORK CIVIL STATE HOSPITALS, APRIL 1, 1930,
CLASSIFIED ACCORDING TO PSYCHOSES

	Total			Binghamton			Brooklyn		
	M.	F.	T.	M.	F.	T.	M.	F.	T.
Traumatic	156	27	183	12	..	12	5	1	6
Senile	490	987	1,477	24	35	59	54	130	184
With cerebral arteriosclerosis	981	843	1,825	67	44	111	99	73	172
General paralysis	1,492	470	1,962	48	24	72	86	26	112
With cerebral syphilis	125	68	193	10	4	14	10	7	17
With Huntington's chorea	27	21	48	2	2	4	2	..	2
With brain tumor	4	7	11	..	..	..	..	..	..
With other brain or nervous diseases.....	212	149	361	5	4	9	16	17	33
Alcoholic	1,115	393	1,508	63	25	88	22	8	30
Due to drugs and other exogenous toxins..	15	14	29	1	1	2	..	1	1
With pellagra .....	..	2	2	..	..	..	..	..	..
With other somatic diseases	57	107	164	3	5	8	3	5	8
Manic-depressive	1,394	2,863	4,257	81	139	220	63	159	222
Involution melancholia	266	681	947	18	28	46	2	11	13
Dementia præcox	13,610	14,942	28,552	1,060	695	1,755	227	279	506
Paranoia or paranoic conditions	429	754	1,183	37	38	75	7	9	16
Epileptic psychoses	579	528	1,107	30	20	50	22	49	71
Psychoneuroses and neuroses	108	145	253	8	7	15	5	3	8
With psychopathic personality	270	282	552	16	24	40	7	14	21
With mental deficiency	788	929	1,717	62	73	135	16	19	35
Undiagnosed psychoses	302	305	607	68	44	112	3	10	13
Without psychosis	10	8	18	..	..	..	..	1	1
Total	22,430	24,525	46,955	1,615	1,212	2,827	649	822	1,471

TABLE IX. RESIDENT PATIENTS IN THE NEW YORK CIVIL STATE HOSPITALS, APRIL 1, 1930,
CLASSIFIED ACCORDING TO PSYCHOSES—(Continued)

	Kings Park			Manhattan			Marcy		
	M.	F.	T.	M.	F.	T.	M.	F.	T.
Traumatic	21	..	21	45	13	58	..	..	..
Senile	15	48	63	67	157	224	4	13	17
With cerebral arteriosclerosis	72	50	122	209	286	495	6	4	10
General paralysis	154	33	187	319	107	426	27	18	45
With cerebral syphilis	21	10	31	15	11	26	1	..	1
With Huntington's chorea	1	2	3	4	1	5	..	..	..
With brain tumor .....	..	..	..	3	2	5	..	..	..
With other brain or nervous diseases.....	57	49	106	42	22	64	1	..	1
Alcoholic	87	19	106	175	122	297	19	5	24
Due to drugs and other exogenous toxins..	3	..	3	6	4	10	..	..	..
With pellagra .....	..	..	..	..	..	..	..	..	..
With other somatic diseases	5	4	9	14	43	57	2	1	3
Manic-depressive	115	314	429	222	641	863	13	11	24
Involution melancholia	35	75	110	27	102	129	1	9	10
Dementia præcox	1,960	2,016	3,976	1,548	2,156	3,704	350	455	805
Paranoia or paranoic conditions	26	72	98	61	84	145	1	1	2
Epileptic psychoses	56	60	116	64	81	145	2	4	6
Psychoneuroses and neuroses	17	7	24	13	14	27	3	2	5
With psychopathic personality	43	37	80	36	44	80	3	1	4
With mental deficiency	59	102	161	64	100	164	13	14	27
Undiagnosed psychoses	12	13	25	53	75	128	1	..	1
Without psychosis	2	..	2	1	..	1	..	..	..
Total	2,761	2,911	5,672	2,988	4,065	7,053	447	538	985

TABLE IX. RESIDENT PATIENTS IN THE NEW YORK CIVIL STATE HOSPITALS, APRIL 1, 1930,
CLASSIFIED ACCORDING TO PSYCHOSES—(Continued)

Buffalo			Central Islip			Creedmoor			Gowanda			Harlem Valley			Hudson River		
M.	F.	T.	M.	F.	T.	M.	F.	T.	M.	F.	T.	M.	F.	T.	M.	F.	T.
6	1	7	26	5	31	10	..	10	3	1	4	1	1	2	7	3	10
14	52	66	62	100	162	19	85	104	17	15	32	10	24	34	52	112	164
48	54	102	83	30	113	46	54	100	24	14	38	23	14	37	96	75	171
82	29	111	231	79	310	80	21	101	32	3	35	45	14	59	102	32	134
19	13	32	4	6	10	4	3	7	..	..	..	4	..	4	7	6	13
1	..	1	1	2	3	..	..	..	1	2	3	2	..	2	2	6	8
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3	3
5	5	10	15	13	28	7	10	17	8	1	9	2	1	3	14	7	21
64	20	84	227	44	271	40	15	55	23	2	25	52	16	68	101	28	129
..	..	..	..	1	1	1	1	2	..	2	2	..	..	..	..	2	2
..	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
3	3	6	6	2	8	3	4	7	2	4	6	..	3	3	2	8	10
39	95	134	235	306	541	51	170	221	48	52	100	22	66	88	117	266	383
15	48	63	30	69	99	11	20	31	12	21	33	2	10	12	23	78	101
628	760	1,388	2,177	1,846	4,023	487	656	1,143	445	332	777	563	632	1,195	1,113	1,296	2,409
11	29	40	57	55	112	8	11	19	10	22	32	11	28	39	21	56	77
27	34	61	107	65	172	33	24	57	17	12	29	10	4	14	52	58	110
4	6	10	11	12	23	..	2	2	3	2	5	..	1	1	13	24	37
5	12	17	48	37	85	10	18	28	7	3	10	7	9	16	19	24	43
36	59	95	149	73	222	20	29	49	34	11	45	16	24	40	60	100	160
13	11	24	32	16	48	16	7	23	10	3	13	3	5	8	45	54	99
..	1	1	1	1	2	..	..	..	..	1	1	..	..	..	..	..	..
1,020	1,233	2,253	3,502	2,762	6,264	846	1,130	1,976	696	503	1,199	773	852	1,625	1,846	2,238	4,084

TABLE IX. RESIDENT PATIENTS IN THE NEW YORK CIVIL STATE HOSPITALS, APRIL 1, 1930,
CLASSIFIED ACCORDING TO PSYCHOSES—(Concluded)

Middletown			Psychiatric Institute			Rochester			St. Lawrence			Utica			Willard		
M.	F.	T.	M.	F.	T.	M.	F.	T.	M.	F.	T.	M.	F.	T.	M.	F.	T.
8	1	9	..	..	..	5	..	5	3	1	4	2	..	2	2	..	2
29	49	78	..	..	..	48	43	91	29	43	72	30	40	70	16	41	57
26	21	47	..	..	..	56	40	96	34	22	56	37	32	69	55	30	85
52	11	63	4	..	4	72	19	91	44	21	65	69	14	83	45	19	64
5	1	6	..	..	..	5	3	8	5	2	7	5	..	5	10	2	12
3	..	3	..	..	..	..	1	1	6	2	8	..	..	..	2	3	5
..	..	..	..	..	..	1	..	1	..	..	..	..	1	1	..	1	1
9	2	11	1	1	2	5	4	9	2	2	4	16	8	24	7	3	10
57	30	87	..	..	..	42	17	59	24	20	44	40	6	46	79	16	95
1	..	1	..	..	..	..	..	..	..	..	..	2	..	2	1	2	3
..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	..	..
5	4	9	..	..	..	1	4	5	1	1	2	2	7	9	5	9	14
101	128	229	3	6	9	40	82	122	80	93	173	63	162	225	101	173	274
14	41	55	..	..	..	20	51	71	20	19	39	15	42	57	21	57	78
890	1,096	1,986	14	10	24	449	645	1,094	611	869	1,480	387	454	841	701	745	1,446
28	123	151	..	..	..	35	67	102	47	52	99	24	29	53	45	78	123
39	31	70	..	..	..	21	16	37	25	19	44	26	19	45	48	32	80
11	19	30	2	5	7	7	13	20	2	7	9	4	11	15	5	10	15
16	17	33	2	..	2	6	4	10	6	16	22	30	15	45	9	7	16
60	51	111	..	..	..	24	49	73	66	71	137	30	49	79	79	105	184
4	6	10	1	5	6	11	34	45	6	4	10	22	18	40	2	..	2
1	2	3	4	2	6	1	..	1	..	..	..	..	..	..	..	..	..
1,359	1,633	2,992	31	29	60	849	1,092	1,941	1,011	1,264	2,275	804	908	1,712	1,233	1,333	2,566

TABLE X. PERCENTAGE DISTRIBUTION OF RESIDENT PATIENTS IN THE NEW YORK CIVIL STATE HOSPITALS, APRIL 1, 1930, CLASSIFIED ACCORDING TO PSYCHOSES—(Continued)

Buffalo			Central Islip			Creedmoor			Gowanda			Harlem Valley			Hudson River		
M.	F.	T.	M.	F.	T.	M.	F.	T.	M.	F.	T.	M.	F.	T.	M.	F.	T.
0.6	0.1	0.3	0.7	0.2	0.5	1.2	..	0.5	0.4	0.2	0.3	0.1	0.1	0.1	0.4	0.1	0.2
1.4	4.2	2.9	1.8	3.6	2.6	2.3	7.5	5.3	2.5	3.0	2.7	1.3	2.8	2.1	2.8	5.0	4.0
4.7	4.4	4.5	2.4	1.1	1.8	5.4	4.8	5.1	3.5	2.8	3.2	3.0	1.6	2.3	5.2	3.4	4.2
8.0	2.4	4.9	6.6	2.9	4.9	9.5	1.8	5.1	4.6	0.6	2.9	5.8	1.6	3.6	5.5	1.4	3.3
1.9	1.1	1.4	0.1	0.2	0.2	0.4	0.3	0.3	..	..	..	0.5	..	0.2	0.4	0.3	0.3
0.1	..	*	*	0.1	0.1	..	..	..	0.1	0.4	0.3	0.3	..	0.1	0.1	0.3	0.2
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	0.1	0.1
0.5	0.4	0.5	0.4	0.4	0.4	0.8	0.9	0.9	1.2	0.2	0.7	0.3	0.1	0.2	0.8	0.3	0.5
6.3	1.6	3.7	6.4	1.6	4.3	4.7	1.3	2.8	3.3	0.4	2.1	6.7	1.9	4.2	5.5	1.3	3.2
..	..	..	..	*	*	0.1	0.1	0.1	..	0.4	0.2	..	..	..	..	0.1	*
..	0.1	*	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
0.3	0.2	0.3	0.2	0.1	0.1	0.4	0.3	0.3	0.3	0.8	0.5	..	0.4	0.2	0.1	0.4	0.2
3.8	7.7	6.0	6.7	11.1	8.6	6.0	15.1	11.2	6.9	10.3	8.3	2.8	7.7	5.4	6.3	11.9	9.4
1.4	3.9	2.8	0.9	2.5	1.6	1.3	1.8	1.6	1.7	4.2	2.8	0.3	1.2	0.7	1.2	3.4	2.5
61.6	61.6	61.6	62.2	66.8	64.2	57.6	58.0	57.8	63.9	66.0	64.8	72.8	74.2	73.5	60.3	57.9	59.0
1.1	2.4	1.8	1.6	2.0	1.8	0.9	1.0	1.0	1.4	4.4	2.7	1.4	3.3	2.4	1.1	2.5	1.9
2.6	2.8	2.7	3.1	2.4	2.7	3.9	2.1	2.9	2.5	2.4	2.4	1.3	0.5	0.9	2.8	2.6	2.7
0.4	0.4	0.4	0.3	0.4	0.4	..	0.2	0.1	0.4	0.4	0.4	..	0.1	0.1	0.7	1.1	0.9
0.5	1.0	0.8	1.4	1.3	1.4	1.2	1.6	1.4	1.0	0.6	0.8	0.9	1.1	1.0	1.0	1.1	1.1
3.5	4.8	4.2	4.3	2.6	3.6	2.4	2.6	2.4	4.9	2.2	3.8	2.1	2.8	2.5	3.3	4.4	3.9
1.3	0.9	1.1	0.9	0.6	0.8	1.9	0.6	1.2	1.4	0.6	1.1	0.4	0.6	0.5	2.4	2.4	2.4
..	0.1	*	*	*	*	..	..	..	..	0.2	0.1	..	..	..	..	..	..
100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0																	

TABLE X. PERCENTAGE DISTRIBUTION OF RESIDENT PATIENTS IN THE NEW YORK CIVIL STATE HOSPITALS, APRIL 1, 1930, CLASSIFIED ACCORDING TO PSYCHOSES—(Concluded)

Middletown			Psychiatric Institute			Rochester			St. Lawrence			Utica			Willard		
M.	F.	T.	M.	F.	T.	M.	F.	T.	M.	F.	T.	M.	F.	T.	M.	F.	T.
0.6	0.1	0.3	..	..	..	0.6	..	0.2	0.3	0.1	0.2	0.3	..	0.1	0.2	..	0.1
2.1	3.0	2.6	..	..	..	5.7	3.9	4.7	2.9	3.4	3.2	3.7	4.4	4.1	1.3	3.1	2.2
1.9	1.3	1.6	..	..	..	6.6	3.7	4.9	3.4	1.7	2.4	4.6	3.5	4.0	4.4	2.3	3.3
3.8	0.7	2.1	12.9	..	6.7	8.5	1.7	4.7	4.4	1.7	2.9	8.6	1.5	4.9	3.6	1.4	2.5
0.4	0.1	0.2	..	..	..	0.6	0.3	0.4	0.5	0.2	0.3	0.6	..	0.3	0.8	0.1	0.4
0.2	..	0.1	..	..	..	..	0.1	0.1	0.6	0.2	0.4	..	..	..	0.2	0.2	0.2
..	..	..	..	..	..	0.1	..	0.1	..	..	..	..	0.1	0.1	..	0.1	*
0.7	0.1	0.4	3.2	3.4	3.3	0.6	0.4	0.4	0.2	0.2	0.2	2.0	0.9	1.4	0.6	0.2	0.4
4.2	1.8	2.9	..	..	..	4.9	1.6	3.0	2.4	1.6	1.9	5.0	0.7	2.7	6.4	1.2	3.7
0.1	..	*	..	..	..	..	..	..	..	..	..	0.3	..	0.1	0.1	0.1	0.1
..	..	..	..	..	..	..	..	..	..	..	..	..	0.1	0.1	..	..	..
0.4	0.2	0.3	..	..	..	0.1	0.4	0.2	0.1	0.1	0.1	0.3	0.8	0.5	0.4	0.7	0.5
7.4	7.8	7.7	9.7	20.7	15.0	4.7	7.5	6.3	7.9	7.3	7.6	7.8	17.8	13.2	8.2	13.0	10.7
1.0	2.5	1.8	..	..	..	2.4	4.7	3.7	2.0	1.5	1.7	1.9	4.6	3.3	1.7	4.3	3.0
65.4	67.1	66.4	45.2	34.5	40.0	52.9	59.1	56.4	60.4	68.7	65.1	48.1	50.0	49.1	56.9	55.9	56.4
2.1	7.5	5.1	..	..	..	4.1	6.1	5.3	4.6	4.1	4.4	3.0	3.2	3.1	3.6	5.9	4.8
2.9	1.9	2.3	..	..	..	2.4	1.4	1.9	2.4	1.5	1.9	3.2	2.1	2.6	3.9	2.4	3.1
0.8	1.2	1.0	6.4	17.2	11.7	0.8	1.2	1.0	0.2	0.6	0.4	0.5	1.2	0.9	0.4	0.8	0.6
1.2	1.0	1.1	6.4	..	3.3	0.7	0.4	0.5	0.6	1.3	0.9	3.7	1.7	2.6	0.7	0.5	0.6
4.4	3.1	3.7	..	..	..	2.8	4.4	3.8	6.5	5.6	6.0	3.7	5.4	4.6	6.4	7.9	7.2
0.3	0.4	0.3	3.2	17.2	10.0	1.3	3.1	2.3	0.6	0.3	0.4	2.7	2.0	2.3	0.2	..	0.1
0.1	0.1	0.1	12.9	6.9	10.0	0.1	..	0.1	..	..	..	..	..	..	..	..	..
100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0																	

*Less than 0.05 per cent.

psychoses showed similar variations. With a general average of 9.1 per cent, there were fluctuations from a minimum of 2.4 at Marcy to a maximum of 15.1 at Brooklyn. The latter institution differs markedly from the others with respect to two other groups of psychoses. The senile psychoses included 3.1 per cent of the total resident population, whereas at Brooklyn they accounted for 12.5 per cent, a rate far in excess of that at any other hospital. Psychoses with cerebral arteriosclerosis included 3.9 per cent of all the resident patients whereas Brooklyn had a percentage of 11.7. In Brooklyn, therefore, these two groups include three times as many patients, relatively, as in the entire State hospital population. Brooklyn also shows a relatively high percentage of general paralysis cases; namely, 7.6 as compared with 4.2 in all institutions. Manhattan shows several interesting divergencies from the general averages. Thus whereas all institutions have an average percentage of 3.9 in the group of psychoses with cerebral arteriosclerosis, Manhattan has 7.0. The percentage of general paralysis cases in Manhattan was 6.0.

There are several important sex differences in the distribution of the psychoses. The senile psychoses included 4.0 per cent of the females, but only 2.2 per cent of the males. Females are also in excess in the manic-depressive psychoses, this group accounting for 11.7 per cent of the females, compared with only 6.2 per cent of the males. The latter, however, are markedly in excess in general paralysis, and in the alcoholic psychoses. The former includes 6.7 per cent of the males, and 1.9 per cent of the females; the latter, 5.0 and 1.6 per cent, respectively. There are but few exceptions to these relative sex distributions in the several institutions. In the senile psychoses, the males are relatively in excess at Rochester. In the manic-depressive psychoses the males show higher percentages at Marcy and St. Lawrence.

BOOK REVIEWS

John Ruskin—An Introduction to the Further Study of His Life and Work. By R. H. WILENSKI. F. A. Stokes Company, New York.

Some years ago the author purchased 39 volumes of Ruskin's works and acquired the habit of referring to them on this and that topic. He found that Ruskin always said something unexpected but it often seemed impossible to capture what he was driving at or to discover the real character of his work. He then began to read Ruskin's works methodically so as to become intimately acquainted with his central goal of ideas, embodied in his conception of art, social economics and war. In this way he hoped to make them available to the public without their having to wade through Ruskin's voluminous writings.

The author began with a study of the available biographical literature and letters and soon found that he had the key with which to unlock the door of the chamber which held the secret necessary for the understanding of riddles in his writings and character. His researches led him to the conclusion that, in order to comprehend Ruskin's writings, character and behavior, it was essential to know the exact attitude of his mind and the circumstances of his life, not alone for any particular period, but also for the specific day on which the page was written.

Ruskin's letters afforded the author valuable information from which he evolved a short biographical outline. This was later expanded into the present volume. While considering Ruskin a great man and a genius, he asserts that he was also a mental invalid and believes him to have suffered from a chronic state of manic-depressive psychosis (cyclothemia). The author makes it clear that he is not a psychologist and is without clinical experience in mental disorders and has but little acquaintance with psychiatric literature.

Under four parallel columns with the following headings: "Events," "Productions," "Repute" and "Health," he has listed in chronological order the outstanding events in Ruskin's life. Ruskin's paternal grandfather became insane late in life. His father was a prosperous wine merchant, who married a first cousin. His mother was 38 when Ruskin was born. Ruskin derived his artistic tendencies from his father, who was fond of poetry and paintings. His mother was a narrow-minded Protestant bigot, with a domineering personality. Ruskin, an only child, was born in 1819, and his boyhood activities were centered in the family group. He was early

encouraged to draw and write in prose and verse. He had but little intercourse with boys and never played games with them. He was not sent away to boarding school, but was tutored at home and at a local school.

About the age of 16 he developed an intense admiration for Turner, the great English painter. He collected minerals and was interested in botany. At the age of 18 he went to Oxford, his mother taking a room in the town. This was, of course, against the traditions of English college students, who do not tolerate babying. However, her word was law and he had to stand for it. He dressed in an eccentric fashion, was chaffed a lot. He did not participate in sports, which again was a breach of English college customs. He won the Newdigate prize with a poem and managed to secure the friendship of some influential members of the faculty.

As is not unusual with neurotic children, he early fell in love, the girl being the daughter of his father's French partner. She was of a different religion. The prospect of marriage was wrecked on the altar of his mother's bigoted Protestantism, against which he had not the courage to revolt. Frustrated in this amatory experience, he developed a depressive state and spat blood. Tuberculosis was suspected, and he was sent to the south of France in the company of his parents. His mental and physical condition improved. He returned to Oxford and took his degree.

Then arose the question of his career. His parents had destined him for the church, but despite his mother's insistence, he declined against it. He was interested in botany and geology and was a pretty good draftsman, but without ability to design. There was no necessity for him to engage in any occupation, as his father was in affluent circumstances.

When 23 his ideal, Turner, was criticized in the newspapers, and Ruskin, like a young Goliath, rose to his defense and wrote his answer to Turner's critics in a book—the first volume of "Modern Painters," published in 1843.

Wilenski shows that what Ruskin did not know about painting at this time would fill several books. To celebrate the publication of this first work, her father, an ardent admirer and patron of Turner, presented his son with the artist's celebrated "Slave Ship," now in the Boston Museum.

At 26, for the first time in his life, he emancipated himself from his family and traveled on the Continent, studying geology and architecture, and began a serious study of Italian paintings. He was accompanied by his valet, who, from the accounts, evidently acted as a man servant and a sort of second solicitous mother. On his return to England six months later he wrote the second volume of "Modern Painters."

His letters at this period indicate considerable feeling of resentment

against his mother, who continued to dominate him, and against his father, who did not understand him. In addition, there were certain sexual conflicts, the details of which are not mentioned, and a second depression followed.

His domineering mother again stepped into the picture and made up her mind that what her son needed was a wife. She picked for the bride-to-be a distant cousin, aged 18. Ruskin was not able to work himself into any enthusiasm for the girl, but finally, either acceding to his mother's wishes or not especially caring what he did, married her when he was 29.

Ruskin claimed that the marriage was not consummated and gave as a reason that he never loved his wife, denying impotence. The psychoanalytic school would probably base his inability to form heterosexual attachments and explain his impotence on the ground of a mother fixation. The marriage, however, progressed fairly satisfactorily, as he had some one other than his mother before whom to display his exhibitionistic tendency to preach and to parade his erudition.

After a time his depression disappeared. Trips to Venice were made with his wife, where he moved in first class society, studied architecture and paintings and gathered material for "The Stones of Venice" and "The Seven Lamps of Architecture."

At about this period he displayed manic tendencies, and constituted himself a reformer. He wrote pamphlets on how to adjust the differences between all the Protestant sects, pamphlets on war, and three letters to the London Times on taxation, election and education. The first paragraph began with the following: "The first principles of these problems are so clear and simple that he who runs may read them." Preaching and his role of reformer had now become a habit with him in his manic moods.

Ruskin's wife and Millais, the painter, fell in love and, after her divorce from Ruskin in 1854, she married Millais. Ruskin apparently did not worry about this. He made the mistake of going back to live with his parents. He went on repeated continental tours, and in his activities and writings displayed considerable hyperkinesia. Wilenski claims that examples of this pressure of mental activity may be seen in the third, fourth and fifth volumes of "Modern Painters." He formed friendships with Carlisle, Tennyson, the Brownings and others of the literati, and practically supported the Pre-Raphaelite painter Rossetti.

Those who have read "The Seven Lamps of Architecture" and "The Stones of Venice" are familiar with his theory that the happiness of the workman is a factor inherent in fine craftsmanship and art. He turned his energies in the direction of social and economic conditions, particularly

the state of English artisans, and devoted considerable time to the newly-founded Working Men's College in London, where he taught art.

Although having produced considerable literature, his vogue was not yet; as the academicians had not accepted him, no one paid any attention to his reform pronouncements. Not getting the recognition which he had sought, he fled abroad in a hypochondriacal state, accompanied by feelings of despondency.

He now met a little girl, Rose, age nine or ten, and developed a devoted attachment for her. Whether Rose resembled his first love, Adele, the young French girl, Wilenski does not state. He visited a girls' school a great deal and romped and played with the children, as though he were still juvenile. Wilenski is inclined to think that in this association with these children he saw visions or resemblances of Rose. The psychoanalyst would probably have another explanation. During this period he wrote "Ethics of the Dust."

His father died in 1863. This had a favorable effect upon Ruskin's mental condition. He was now independent, a wealthy man with considerable responsibilities. He made numerous gifts to friends, museums and galleries, apparently in a state of well being.

He proposed in 1866 to Rose, now 18, but being very religious, she objected to his skepticism and put him off for three years until she would be 21. From all accounts, Rose was a precocious neurotic, over religious and hypochondriacal young woman, and would have made the worst possible wife for Ruskin. It is not uncommon, however, to find neurotics attracted to each other. At the time of the proposal Ruskin was not well mentally. By degrees his writings and lectures had begun to procure him considerable fame and in 1867 he was given an LL. D. by Cambridge, where he delivered the Rede lecture.

He now turned most of his attention to economics and social service and contributed himself a leader in this field. He became exasperated when the public did not accept his views.

Through the influence of friends and also due to his growing reputation, he was appointed Slade professor of fine arts at Oxford with the understanding that he would not talk about his social, religious and economic views. Despite his promises, he could not refrain from putting forth his attitude on these subjects. He busied himself with writing pamphlets at his own expense on the condition of the working men and laborers in Great Britain. He founded and endowed the Guild of St. George, of which he was the "Master." This guild was a scheme of agricultural settlements for workingmen.

His mother died at the age of 91 leaving him 111,000 pounds. It is difficult for the reviewer to ascertain whether there was any depression on his mother's death or not, but judging from his letters for some years prior to her demise, he could not have been very sorry when she passed away.

In 1878 he had another breakdown. Wilenski thinks it was due to his not having been accepted as the guide and arbiter of art in England. Moreover, his professorship at Oxford had been something of a frost, very few students attending his lectures. The guild, for which he had made expansive plans, languished. Very few subscriptions from wealthy friends were received. He himself spent so much time abroad that it had to run itself.

He now began to write pamphlets on geology and history, although there is no evidence that he had made a scientific study of these subjects. He was an outstanding prose writer in his own peculiar style, although he constantly resented commendation for his ability in this direction, preferring to be acclaimed as a leading art critic and social and economic reformer.

There would now be periods when he would display great cheerfulness and activity, and then again there would be months when he would be morbidly downhearted and unproductive. Wilenski mentions the following obsessions and delusions which Ruskin experienced in the seventies. First, that a new kind of storm cloud and plague had come to destroy the beauty and pleasantness of the physical world; second, the idea that he was a lonely and pathetic orphan; third, a series of images in connection with Rose; and fourth, a fear associated with fire flies and fireworks. Samples of his letters are quoted to substantiate this phase of his life.

When Rose died there is no evidence that it had any particular mental effect upon him. No doubt Ruskin was like a great many of his mental type, who play with the idea of love, but never really consummate it. After Rose's death, he became interested in spiritism and identified Rose with Dante's Beatrice and St. Ursula in Carpaccio's paintings in Venice, and elaborated on these themes. Wilenski states that in 1878 he was in a delirious state for two and a half months, but does not give any description of his condition. He resigned his Oxford professorship in the same year.

Ruskin's fame gradually extended and he became probably the leading art critic in Great Britain and America. Numerous societies were founded to study his works. His letters written in 1800 show extreme elation. His fourth mental attack occurred in 1884. In 1887, they reveal him in a euphoric state, alternating with states of despondency. At this time he had spent a large part of his fortune in making various purchases, gifts to his friends and bad investments. His writings, however, brought him in a splendid income. He died in 1900 at the age of 81. His estate at the time of his death amounted to £10,662.

Wilenski remarks that Ruskin's writings are always genuine, personal and not gathered from other sources. He was, however, never what would be called a scholar. In the field of art, he knew all he was to know by the time he was 40. He entered the field of social and political economics at 30 and knew all he was to know at the age of 40. He did not interest himself in war until the age of 40, and from then on extended his knowledge.

Like all biographers, Wilenski produces material to sustain his contentions. There is no doubt that one of the most valuable means of gaining insight into the operation of one's mind is through the study of letters to intimates. It is undoubtedly true that Ruskin was of a somewhat psychopathic make-up and at times suffered from oscillation of mood, now showing elation, great activity and grandiose plans, and then again depression and hypochondriacal states. These oscillations in mood became more frequent as he grew older. However, there was always an element of common sense in Ruskin's reforms, though the English of his day refused to accept them.

The study is an interesting one, made by an author who is not a psychiatrist.

GARVIN.

The Behavior of Young Children. III. By ETHEL B. WARING and MARGUERITE WILKER. Charles Scribners Sons, New York.

This book of about 200 pages is the third in the Series on Childhood Education under the editorship of Patty Hill Smith, professor of education, Teachers' College, Columbia University, who writes the introduction.

The work is divided into two sections, the first on Children with Materials, and the second on Children with Other Children.

A few incidents illustrating behavior with materials with searching questions precede quotations from a large number of sources, which cover practically the entire field of child nurture of the pre-school years. Space forbids mentioning the authors but a bibliography is appended at the end of each section, so that the author's work may be consulted.

In order that interested parents may properly evaluate the behavior of the child, a series of questions follows, and this is succeeded by a series which should discover the parental attitudes and standards.

In the second section which is somewhat brief, the same plan as in section one is followed. This serves as a short introduction to the psychology of childhood and should lead to more extended works.

This series is to be recommended as safe and sound, and will be of considerable educational value to parents of young children.

J. C. HOEFFLER.

Psychoanalysis and Medicine: A Study of the Wish to Fall Ill.

By KARIN STEPHEN, M. A., M. R. C. S., L. R. C. P., Sometime Fellow of Newnham College, Cambridge; pp. 238. Price \$2.50. Macmillan Company, New York, 1933.

Within the last few years a great many books have been written on psychoanalysis. Some of them are very technical and couched in language beyond the comprehension of the average reader, while others are so popularized that they are without scientific value and are distinctly dangerous for the casual reader. As Dr. Ernest Jones says in the preface, "We all have within us strong forces which operate without our knowledge and against our will in keeping this unexplored field alien and remote." This book has attempted to clarify psychoanalysis and to place it on a scientific level. Dr. Stephen has had considerable experience in a mental hospital here in America and shows an insight into the various problems that face the neurotic in his adjustment to American life.

As the author says: "Probably there is no one, however apparently normal, who has the full use of his capacities; some sacrifice of power is always being made to avert the anxiety which privation has at some time aroused, and whose reappearance is dreaded. But in normal people what is being repressed represents only a small part of their total capacity, most of it is finding more or less satisfactory discharge, and this residuum is either simply lost by complete repression or is producing symptoms of negligible importance. * * * The symptoms are defences against a danger situation which they cannot tolerate, but this danger is not consciously recognized. * * * The problem for medical psychology is simply this: given that anyone is suffering from an internal conflict of repressed impulses, what outlet are those impulses finding?"

The author outlines the various theories and leads the reader through the stages of psychosexual development. She states: "Psychoanalysis, despite the exuberance of some of its converts, is after all not a Gospel, but an empirical science building up general laws on the material it observes. * * * The psychoanalytic method * * * puts no pressure on the patient, being directed solely towards understanding him and enabling him to understand himself. * * * The analyst does not put questions or in any way direct the patient as to what he shall think about. All that he asks the patient is that he shall let his thoughts and feelings go as they will, without trying to direct them at all, without selecting or suppressing any of them, and without rejecting whatever may come up."

This book acts as an excellent introduction to a more thorough study of the subject of psychoanalysis, and although not all readers will agree with the author, she has steered a middle course which likely will be essentially acceptable.

Insanity as a Defense in Criminal Law. By HENRY WEIHOFEN. 524 pages. Price \$3.75. The Commonwealth Fund, New York.

The Commonwealth Fund has sponsored splendid undertakings and when it granted aid to the University of Chicago Law School for the purpose of studying insanity as a defense in criminal law it, through its legal research committee, advanced the common interest. The faculty designated Henry Weihofen, Esquire, to make the study and under the title, "Insanity as a Defense in Criminal Law" the results are published by the Commonwealth Fund.

The book deals with the historical development of the legal tests of responsibility including the right and wrong test, with, of course, frequent references to the famous M'Naghten case and of the present status of the formulations made in 1843 by 15 judges. Irresistible impulses of which we hear little in New York State, are considered. This second test of responsibility is recognized by 17 states and by the District of Columbia and the author reports that it has been adopted by the United State Supreme Court. The presence of delusions is considered in five states but only as they may have a bearing on the knowledge of right and wrong or on impulses so strong as to be overpowering.

The book gives information concerning the burden of proof, upon whom it lies, and the relative weight to be given to expert and non-expert evidence. The chapter on pleading and procedure is more useful to a lawyer than to a physician but it can be read by a psychiatrist with interest and profit.

In this book a contentious question is dealt with in a dispassionate manner and by its perusal one pleasantly acquires considerable information on a topic of major interest to psychiatrists who occasionally have found themselves in situations not always to their liking. And not always has the profession emerged with credit.

At the end of each chapter there is a digest with references to the status of each question in all the states having statutes thereon. The Massachusetts law providing for the examination by the state of serious cases is discussed, and with a fair statement of the merits and demerits of the law.

Mr. Weihofen has produced a book which, though primarily for lawyers, psychiatrists will find to be an excellent presentation of a subject of their interest.

PARSONS.

Human Values in Psychological Medicine. By C. P. BLACKER, M. C., M. A., M. D., M. R. C. P. 175 pages. Humphrey Milford, 1933. Oxford University Press, London.

The author tells us in the preface that "his general argument is that the science of medical psychology, having been much advanced in the last 30 years by the study of the generic characteristics of mental disorder, would now be yet further advanced if attention were turned to the personal characteristics and idiosyncrasies of individual sufferers." He has argued "that it is in the realm of a person's affective reactions expressing themselves in the commerce of life as his values that his idiosyncrasy mainly resides."

The word 'value' is used by the author to denote the affective (e. g. valuing a token or souvenir) rather than the intellectual process (such as judging the commercial value of the object). The 'value' of an object he treats as equivalent to its power of satisfying psychic needs (which might be unconscious as well as conscious). The judgment that the object is valuable is secondary in the act of valuation. The various philosophical conceptions of value are discussed and values are then classified. Finally values are related to idiosyncrasy (the sum of the latent or apparent characteristics in virtue of which the individual is unique).

The author has a tendency to clearly define his terms principally by means of a comprehensive classification and analysis of their usages; thus we profit by many interesting discussions of 'value,' 'need,' 'creativeness,' 'analysis,' 'reality,' 'literal and synetic meanings of words,' etc.

Occasionally the reviewer felt at a loss not because the author was not clear or understandable but because the main thesis could so easily be lost sight of. Furthermore the clinical application is vague and briefly mentioned. This is a criticism only in so far as the author may have led us to look forward to such a result in his preface. A refreshing style and a philosophical language sometimes hide much obviousness.

Most of the latter portion of the book has to do with the author's secondary aim of attempting to relate the principles of psychological medicine to those of biology. He brings together the physiological conceptions of the nature of reflex action advanced by Sherrington and Pavlov, the biological views of Rivers with regard to the transformations of instinct involved in animal socialization, and the psycho-analytical conception of the essential factor in human socialization, viz., the Oedipus complex. He finds that the contrast between River's protopathic and epicritic instincts, Pavlov's unconditioned and conditioned reflexes, and Freud's primary and secondary processes have much in common. It is from upon such a broad basis that he considers human socialization and instincts. The author presents not only critical evaluations but much original thinking.

It is in the last chapter on 'Life and Death Instincts' that the psychiatrist will undoubtedly find most interest. The author critically analyses the Freudian conception of instincts, disputes the existence of a specific death instinct and presents his own hypothesis that self-destruction is the expression of an inwardly turned aggressiveness resulting from endopsychic frustration. The author although not a psychoanalyst feels himself under an immense intellectual debt to the genius of Freud.

The book is heavily weighted with quotations from most varied sources, such as Dean Inge, Plato, William James, Bergson, Sherrington, Rivers, Freud, Pavlov, etc., to a total of about 75 different authorities.

The psychiatrist is sure to find much of interest here.

FREDERICK ROSENHEIM, M. D.

Correction of Defective Speech. By EDWIN BURKET TWITMYER, Ph. D., and YALE SAMUEL NATHANSON, Ph. D. P. Blakiston's Sons & Co., Philadelphia, Pa.

There are various factors entering into the production of mutism or of defective speech. Children with these difficulties may require the attention of the neurologist, the surgeon, the clinical psychologist. But, if the defective speech has continued for some time, these aids alone will not be sufficient. There must be, in addition, the formation of new habits of speech. Interference in the normal rhythm of breathing occurs in a large number of cases. Because breathing is a volitional or semi-volitional function, this is amenable to correction. Also, there can be acquired the proper oratans, or use of the tongue, lips, teeth, so as to give necessary non-interference or proper interference with the column of air from the larynx to produce the various sounds. The formation of these proper habits of speech is an extremely slow process. The time required of course is in direct proportion to the amount of participation of the individual, but never is there any particular skill acquired until by long continued repetition the movement becomes automatic.

The authors, in their book, set forth in detail their new method for training in correct habits of speech. They have made a classification of sounds so that in teaching one begins with the simple oratans and gradually proceeds to the more complex, until a vocabulary of properly enunciated words is built up.

The book would seem to be written primarily for the use of those who will specialize in the correction of speech difficulties or in the improvement of articulation even where no specific abnormalities exist.

RENA M. BIGALOW.

Genetic Psychology. By A. R. GILLILAND, Ph. D. 351 pages. The Ronald Press Co., New York.

This is one of the few recent books which fulfills the present demand for a psychology which reflects the evolutionary or genetic approach. Hence it stands as a gem worthy of every library.

"Two things have been emphasized; namely, the evolution of structure and the evolution of behavior." Hence the text purposes to give a brief survey of the important features of two developments; namely, the story of the origin of life and its development through the countless ages to its highest form in man and the growth of man from the time of his conception as a one-celled organism through childhood to his place as a responsible member of society.

The first purpose is significantly fulfilled in the first six chapters of the book. Consideration is given to the origin of life and the evolutionary aspects of both the invertebrate series and the vertebrate series are developed. The strikingly rare psychological phenomenon of this portrayal is the careful and interesting development of the behaviorisms, both innate and learned, of these series from the lowest to the highest, man.

The second trend emphasized, growth of man from a one-celled organism through childhood to a responsible social being, engages the remainder of the text. First the factors of inheritance and prenatal developments are discussed. Then the author assumes that inherited responses are fewer in number than has been previously suggested by many psychologists. Later special consideration is given to the fusion of these capacities into perceptions, and the gradual unfolding of definite and skilled acts from the reflex, instinctive, and random movements of infancy. Following this a rather complete account, corroborated by many authoritative studies, is given of the development of intelligence from its earliest origins to adult life.

The development of the learning process is further described by giving attention to such phases as perception, thinking, memory, emotions, and language. Special attention should be called to the genetic approach given to the problem of language as a factor in learning. Recognizing that "language is man's chief advantage over the rest of the animal kingdom" the author gives an excellent account of its early origins and how it is acquired by the child.

As a final touch to his approach the author indicates how such factors as play, art, music, adolescence, personality, character, and health produce significant changes and contribute to the full development of the human being from childhood to adulthood.

In comparing this text with many that are flowing into circulation these

days one's attention is especially attracted to its unusual treatment of many significant aspects of behavior. Among these might be mentioned (1) the phylogenetic development of man, from its lowest origins to its present state, and the accompanying behavior of each stage of development, (2) the author's fine description of two periods of child-development, namely, "prenatal" and "at birth," (3) his excellent discussion of the origins of language and the importance assigned to it as a factor of intelligent behavior, and lastly (4) his treatment of personality and character building.

Thus such a book is a valuable asset to every one vitally interested in the problems of living.

RALPH HORN.

Guidance Materials for Study Groups. Compiled by KATHRYN McHALE, ELIZABETH MANWELL, FRANCES SPEEK and HARRIET HOUDLETTE. Published by the American Association of University Women, 1634 First St., N. W., Washington, D. C.

These books are uniform in character. There is first an outline of the different phases of the subject for study, followed by questions for discussion and a very extensive bibliography which should enable a study group to obtain the latest information from authoritative sources.

The subjects outlined include "The Infant," "The Toddler," "Adolescence," "The Mental Health of Parents and Children." These books should be useful to those groups who desire a concrete course of study in the physical and mental guidance of children. The books are paper covered and very reasonable in price.

J. L. TOWER, M. D.

Medieval Faith and Fable. By J. A. MACCULLOUGH, D. D. 299 pages. In cloth. Marshall Jones Co., Boston.

This scholarly book replete with many quotations of past centuries clearly indicates how many beliefs of primitive man survived in the middle ages. The volume draws reference, particularly from religious sources. A discussion of fairies, demons, and the beliefs of certain heretics and sceptics of the time are authoritatively portrayed. This material will prove enlightening to those who come upon it for the first time. Psychiatrists through such books as Frazer's *Golden Bough* to the writings of Jung and Freud, and various ethnologic sources have come in contact with this general trend of thought from a somewhat different angle. This work is a valuable source book in tracing evidence of primitive thought in later civilizations.

SANGER BROWN, II.

Introduction to Literature for Children. By ELEANOR RAWLINSON. 493 pages. W. W. Norton Co., Inc., New York.

The author states that this book is for students of the subject commonly known as "Literature for Children." She explains first what is meant by "Literature for Children" as "any literature that children can psychologically comprehend and can mentally and emotionally thrive on," that is, understand why the characters in the story act as they do.

She divides literature into two categories, traditional and sophisticated literature. Under the first heading come myths, including Greek and Norse myths with typical selections from both; hero tales, with stories of such heroes as Robinhood, King Arthur and Odysseus; a short section on ballads, with examples; then the popular household tales, which with nursery rhymes are usually the child's first introduction to literature; and last in this section come the fables, also thoroughly dealt with.

In each section the author explains the source of the material, its appeal to the child, suggestions as to its presentation, a bibliography and suggestions for further study.

The author does not deal quite so fully with the sophisticated literature, as there is so little of that type that is within the comprehension of the child. In the sophisticated section, she includes fanciful tales, realistic stories, romantic stories and poetry. There is a variety of poetry presented, but no sophisticated stories. There is given, however, a bibliography in each case, with a sentence or two relating to each story, describing its suitability to children of various ages.

She explains very fully methods of teaching literature to children and how to procure books and pictures needed in the teaching. She adds also a list of the addresses of the publishers of the books mentioned in the bibliographies.

Although this book was written primarily for students and teachers, and is presented as a textbook, it is also valuable for parents, or anyone interested in literature for children. The material is presented in a clear and interesting way and the illustrations have been carefully chosen. The bibliographies and lists of suitable pictures are an excellent guide for further reference. It would be a valuable addition to any household library where there are children, as well as a comprehensive study for students and teachers.

CAROLYN M. PALERMO.

Cerebral Injury in New-born Children Consequent on Birth Trauma: with an Inquiry into the Normal and Pathological Anatomy of the Neuroglia. (Acta Pathologica et Microbiologica Scandinavia, Supplementum X.) By ERIK RYDBERG. 247 pages. Levin and Munksgaard, Copenhagen. 1932.

In view of the widespread interest which is being shown in birth lesions and subsequent handicaps, a publication of this type should be well appreciated by the scientific reader.

Broadly speaking, the point of view is medical. In the introduction the author states: "The investigations here presented comprise a study of cerebral injury in new-born children, from both the clinical and the pathological-anatomical aspect, particular attention being devoted to the question of the influence on the child of the birth process and the real nature of birth trauma."

Because of the quantity of basal material contained in a book of this type it is somewhat difficult to do it justice in a brief review.

In the early chapters the author carefully details the technique for autopsy examination of intracranial tissues in infants; also for histological study, including the preparation and staining of material. A review of brain-cell morphology and structure is presented. This part of the text is beautifully illustrated with microphotographs, some in colors. Thus, the first 75 pages afford a clear but concise treatise on cell derivation, structure and pathogenesis.

Next is taken up a theoretical consideration of the causes of intracranial hemorrhage, both mechanical and non-mechanical. Rydberg develops this thesis by quoting such well-known men as Schwartz, Virchow, Holland and Cushing. He opposes the opinions of many, particularly Schwartz, while basing his main premise largely on the early work of Cushing. Briefly, this concept suggests that an increase in intracranial pressure results in a compensatory increase in blood pressure. The author hypothesizes from this that a sudden cessation of uterine pain will leave the fetal blood pressure at an abnormally high point resulting in undue strain in intracranial vessels.

Another interesting theory favored by the author holds that an increased pressure exerted against the cerebrum is not necessarily transmitted in full to the medulla (regulatory center), consequently there may not be a sufficient rise in blood pressure, resulting in an anemia and trauma of the pressure area.

At another point the author states (p. 60): "Practically all injuries to

the brain of new-born infants are due to an acute suffocatory influence. This is true whether the suffocation is local, owing to the pressure of a hematoma or general, owing to a disturbance in the circulation or in the breathing."

Chapter VI takes up a recitation of case material and case studies which continues through the greater part of the book. Although reference is made to a wealth of very interesting clinical data, a most valuable adjunct consists of a series of 50 selected case studies in the appendix. In general, it was found that meningeal hemorrhage frequently occurs without bleeding in the brain substance itself but bleeding in the intracerebral substance without blood also appearing in the meningeal spaces and spinal fluid is indeed rare. It seems impossible to establish a borderline between those hemorrhages which are unimportant and those of pathological significance. The majority are probably of symptomatic but not pathogenetic importance.

In Chapter VII common symptoms are listed together with frequency and time of appearance. The cases are divided into two groups for this purpose: those with considerable hemorrhage; those without hemorrhage.

Bleeding into other body cavities and organs is considered along with intracranial hemorrhage. The author hesitates about being dogmatic on the subject of hemorrhagic diathesis. He does feel that insufficient coagulability may perhaps be contributory to all forms of bleeding.

So far as differential diagnosis is concerned, there is but rarely any confusion. Although considerable space is devoted to the spinal tap both for diagnostic and therapeutic purposes, the author is fully aware of its shortcomings and its dangers. He states: "Blood in the cerebrospinal fluid revealed by lumbar puncture in a new-born child need, in most cases, imply no serious intracranial lesion."

Among the permanent sequelae observed are: mental defect, epilepsy, parietic conditions, static defects, neuromuscular eye disturbances and vestibular disturbances. Treatment is considered both as symptomatic and radical, the latter being directed against the intracranial derangement itself. The last six pages contain a splendid bibliography of both European and American writers.

Although one may not be in perfect agreement with some of the statements set forth in this volume, nevertheless it must be ranked as a most valuable text and a real contribution to the literature on birth lesions.

EUGENE W. MARTZ.

The Meaning of Right and Wrong. By RICHARD C. CABOT, M. D. 456 pages. Price \$3.50. The Macmillan Company, New York.

One finds a comprehensive exposition of the groundwork and principles of ethics in this volume which Dr. Cabot has chosen to call "The Meaning of Right and Wrong," a title that appears outright and simple, and is capably backed up by a text of highly instructive and interesting material. The trend of thought in this book has as its nucleus the theme of the right and wrong way of facing reality. The individual who is unwilling to accept the competitive challenge of life, slinks and retreats in to diverse means of self-deceit, dishonesty or wrong doing; his unethical behavior continuously warps his character and diminishes his opportunities for growth and progress. On the other hand, the individual who wishes to grow and advance can only do so on the basis of strictly ethical conduct, that is, by living up to the standards of his community and the righteous ideals set up within himself. The author goes into great detail and gives an elaborate analysis of the manifestations of right and wrong behavior. His many personal and medical experiences as well as the numerous incidents and stories taken from well-known works of fiction colorfully illustrate the nature of the ethical problems involved.

To follow closely the arguments that the writer presents, let us examine the subject of his text. The book opens with a discussion of agreements which are classified as external, internal, explicit, implicit and tacit. Any agreement is defined as "a declaration of intention arrived at in view of an understanding of facts by the various tendencies within one person or by two or more persons." It serves primarily as a tool to satisfy the various needs in one's make-up. All these needs emanate from one authoritative or chief need—growth (by which is meant growth of the community and of character).

The carrying out of agreements, it is pointed out, depends upon the honesty of the persons involved. The obligations made, barring the allowable human margin of errors (and taken care of under such technical terms as "due care," "interpretation of agreements," etc.), cannot be relinquished unless they have been acted upon by all persons concerned to "break the agreement." Only conditions such as "contracts made under force or fraud," or when "there was no serious agreement in the first place, etc.," allow for the dissolution of the bond. Emphasis is laid not so much upon the agreements per se but upon the qualities, needs and veracity of the makers of the agreements, for it is clearly shown that the fulfillment of the contract devolves directly upon the character of the individual.

The ultimate object of ethical action is summed up by Dr. Cabot in the

following statement: "When we say that the object of life is 'life itself' we mean that the object of life is growth. We achieve it by facing reality and drawing its power into ourselves. Our makeup fits us peculiarly either to grow by learning from reality or to decay through an attempt to rest in self-deceit."

These devious forms of ethical behavior, which make for stagnation or degeneration, are well-recognized in various means of self-deceit which the author presents as "familiar dodges in the practice of fooling ourselves." The dishonest person, apparently aware somehow of his wrongdoing, tends to absolve himself from blame or seeks impunity in rationalizations or self-deceit. He may cover up by: "Pleading necessity, the favorite moral alibi; procrastination; exception-making; defending his privileges; sheep-mindedness; selfishness; pretense of unselfishness; autoeracy unavowed; liberalistic slovenliness; the attempt to get something for nothing; the appeal to 'self-preservation' as a right; recklessness; lying."

Throughout the discussion of these devices for wrong, the reader gathers that they are more or less dependent upon a mechanism of denying to oneself the reality of a situation, for by "self-deceit the light is turned so low that it is possible to think one sees as much as one wants to see and no more. The self-deceiving impulse is a reckoning. It palavers, sophisticates, 'rationalizes.' It gets its will, the will to be comfortable, by Freud." In this manner persons learn by "habit" to run away from a situation, to shy away from the truth—they are unwilling to fight. In further analysis of self-deceit, the writer says "that it is the technique of all intentional wrongdoing" and has its root in fear. He affirms that he believes it to be a conscious process and on this ground admits that he disagrees with the Freudians, who feel that it is unconscious. He does not quote or attempt to refute the psychoanalyst's theories.

Having revealed the pathology or basis of ethical ills, Dr. Cabot proceeds to treatment. Under the caption of "implementation" he views several possible means of strengthening moral forces. He says "our moral freedom goes as far as the intelligence which harnesses available forces and circumvents obstacles to our will." Available forces that can readily be utilized are given as "mechanical devices, trains of association, commitment to interests or to persons." By employing such means, one can reach a higher level of moral values and easily overcome obstacles as "inertia, fear, forgetfulness, worry, day-dreaming, remorse and vacillation." Good habits can be formed easily if one has a goal in view and enlists all possible aids to overcome retarding influences. The whole process, if pursued conscientiously and faithfully leads to a system of "supermoral" ideals and behavior conducive to growth and the best interests of society.

In the contents of this book many apparently puzzling ethical situations are described in an interesting reflective manner. The manifold subtleties to which the dishonest impulse resorts are excellently discussed and, no doubt, should be understood and known by every student of human behavior. For this purpose the book is particularly recommended. In prescribing his program for ethical improvement, the author seems rather optimistic as to the results that can be obtained. This attitude, it is felt, is probably due to his conviction that dishonesty is a conscious process.

M. D. RIEMER.

Dementia Præcox—A Psychological Study. By HARRIET BABCOCK, Ph. D., Research Psychologist. 167 pages. The Science Press Printing Company, Lancaster, Pa.

The author presents a study made on the wards of Manhattan State Hospital of 206 dementia præcox cases. These have been compared with 216 non-psychotic persons. She seeks to show that experimental technique gives evidence that the phenomena of dementia præcox are similar to those of other organic brain disease, and therefore, it would be unwarranted to hypothecate other causes. The inference is that certain aspects of dementia præcox can only be explained upon a theory of mental impairment due to organic or physiological causes.

The method of examination consists of the application of certain standardized psychometric tests, among others, personal information, general information, immediate reproduction and delayed recall of paragraph, substitution, digits and reverse digits, learning paired associates, and opposites. There is much that is technical, and details of testing and comparisons are elaborate and tedious. The matter is expressed clearly and accompanied by charts. Such words as dementia, deterioration and præcox are used indiscriminately. She denies blocking or interference and claims the præcox patient is not deficient as regards attention. The conceptions of dissociation and splitting of personality are not indicated as explanation of phenomena observed. Evidence is found that the defect lies in slowed perception and response, with a reduction of control of associations and voluntary actions. Contrasts between the præcox group and the mentally deficient on the one hand and with the normal group on the other, demonstrate certain differences in response which are constant and identical for the group and for the individuals.

Whether or not we are willing to accept all the conclusions reached, we must grant that her research problem has been accomplished thoroughly and systematically, observing logical and scientific methods. That is more than can be said of much that is contributed in the field of psychiatry.

ROWLAND.

The Story of Scientific Psychology. By ADELBERT FORD. 302 pp. \$3.00.

Sears Publishing Company, New York.

Professor Ford's book has been said to be one for every reader, but there are many unfavorable allusions in it to various groups, notably the present-day psychiatrists who are apparently not held in great esteem by this author.

The volume is well written in simple understandable language and carries one through psychological history from its conception among the early Greeks to its present standing in our educational and industrial programs. The reader is carried from a description of the age of alchemy to a description of the psychologic and physiologic make-up of brain and neurones, and then learns of the various organs of expression, hereditary behavior, the various types of learning, etc. The future of psychology as a science, and its estimated value is discussed in the closing chapters, together with a short discourse on the personalities of psychologists.

Professor Ford's book is an interesting one, and undoubtedly presents many truths. However, in simple language, and a straightforward manner, he assails child psychologists whose textbooks he states are in over 90 per cent of the cases written by persons "who have not even had the somewhat doubtful advantage of practical experience in raising children." He soothes this remark, which is perhaps not original with him, inasmuch as it is a commonly expressed one, by stating that he is not generally attacking child psychology, but is doing it to attempt to "halt those who rush into wholesale applications before there is an accumulation of scientific facts.

It is of course difficult and practically impossible for this reviewer to understand how any form of child psychology can even be made to conform to any definite concepts, such as perhaps Koch's postulates, or a modified law. It is well known that in the various books on child psychology, numerous opinions are expressed, but they no doubt are all honest and intended to be beneficial.

The author further levels his guns at the psychiatrists, writing that they "Have seldom used refined mathematical treatment of data, have little knowledge of scientific metric methods, have set themselves up as little omnipotent gods who need only ask a few questions of a patient and then deliver an answer, free from the errors of subjective illusion, untainted by any likelihood of statistical error of sampling." He then discusses very briefly Freudian psychology and the attitude of academic psychologists toward it.

In another paragraph he states that "the psychiatrist is the only man

authorized to cover up his deficiencies as a diagnostician, and to present to the patient only the items in which he has confidence."

Unquestionably the book is interesting, especially in its historical description of psychology, and its picture of present-day laboratory methods being used in the study of this science. It will, however, be especially interesting to psychiatrists (who fortunately as a class are not easily offended) to read in print, what no doubt is the opinion of many misinformed and biased individuals.

HYMAN SMOLEV.

The Jungle of the Mind. By Dr. EDGAR JAMES SWIFT, Head of the Department of Psychology, Washington University, St. Louis. \$2.50. Charles Scribner's Sons, New York City.

Why do some authors write so interestingly that the reviewer is compelled to read his every word?

"The author has tried to show the curious ways in which the human mind works, exposing its frailties, its credulities and its gullibility, with the hope of clearing away some of the underbrush for those who care for straight thinking and for a clear view of tangled problems."

In the fore part he shows up the psychic fakers much as did Dr. Dorothy Hazeltine Yates, in *Psychological Racketeers*. (See review in the January, 1933, number of this magazine.)

The titles given to chapter headings do not always give a clue to the context. Chapter 1, "Jungle Ways," considers the contributions of fakers and other cultists to the confusion of the laity. In Chapter 2, "Curiosities of the Mind," he states, "We have been emphasizing lack of knowledge as a cause of these curious credulities, but we must continually stress man's racial preference for mystical explanations, which is always a powerful confederate in this conspiracy of fooling people." "The human mind is so constituted that information which comes from a mysterious source seems more valuable."

Chapter 3, "It's Easy to Believe," is most amusingly full of illustrations that the author is thoroughly familiar with his subject.

All through we note a complete understanding of the confusion prevalent due to the lack of logical thinking.

Chapter 11, on psychoanalysis, is well worth the cost of the book, this being handled in a very rational manner, but this statement may also be used for any or all chapters. The book can be recommended as entertaining and psychologically sound.

GRAY.

Approaches to Personality. Some Contemporary Conceptions Used in Psychology and Psychiatry. By GARDNER MURPHY, M. D., Columbia University, and FRIEDRICH JENSEN, M. D., Freiburg-Im-Breisgau; with a supplement by JOHN LEVY, M. D., Columbia University. Coward-McCann, Inc., 55 Fifth Ave., New York.

This appears to be a calm, dispassionate analysis of the many problems arising in the study of personality. Success is probably attained by reason of the fact that each author has tried to present his part of the problem from a thorough and practical knowledge of his own field.

The book is not for the fiction-loving mind, nor can it be recommended for light summer reading, however, it is attractively gotten up and is surprisingly easy to read and understand. There are, naturally, no illustrations but several figures are shown, the better to bring out the context; for instance, on page 57 we find a schematic drawing resembling a figure out of a book on organic chemistry showing the relation Braid stands to Janet, Freud, etc.

The authors state that they "aim to describe ways of thinking about personality rather than to insist upon decision between them. Considering the fiendish complexity of the human organism, it seems to us very improbable that this century, or even the next, will succeed in systematizing our knowledge and giving us a conception of personality as clear and sound as the conceptions of contemporary physical science." A most interesting and truthful statement which seems to the reviewer should come in here appears in the introduction, page ix, but is abstracted, "A psychologist who tries to keep up with his field may trot about in a great library between the * * * departments assigned to education and to physiology, anthropology, * * * etc.; he may spend hours among the * * * journals and days in the medical libraries; but he is never up to date, never master of his field, never sure * * * that he has covered the available literature. He knows perfectly well that next month's psychological abstracts will bring him * * * several hundred more pieces of research * * * which will * * * disorganize, or even upset the reasoned conclusions to which he has fought his way." This should not be discouraging but does often explain the variability in viewpoints not only of psychology but that newer special branch of medicine, psychiatry.

Part I, written by Dr. Murphy, describes that German word, "gestalt," so difficult to understand. He accomplishes the feat so well even an insular American may use it safely and correctly. In his second chapter we find a comparison of the older authorities on psychology and the birth of modern

psychology and psychiatry. The final chapter gives the views of the behaviorist's approach.

Dr. Jensen presents Part II, consisting of three chapters, the first of which analyzes Freud's contribution to psychology and psychiatry in such a sane and wholesome way that one who has been opposed to the whole theory by reason of the sexuality so prevalent is reconciled to the fact that there is a good deal to it after all. His second and third chapters introduce the analytical psychology of Jung and the individual psychology of Adler.

In Part III, Chapter VII, written by Dr. Levy, we get an approach to the study of personality in an historical sketch of the child guidance movement. The methods of which are beautifully illustrated in an analysis of a "Problem Boy," followed by a comprehensive outline for history taking.

The final chapter, No. VIII and Part IV, compares, "Ectecism and Genetic Method," which might be compared to a compendium of the history of modern psychology.

Seven pages of notes give additional information and references and a bibliography at the end affords plenty of information for the reader who wishes to follow up the story.

GRAY.

The Intelligence of the Prospective Immigrant. Public Health Bulletin No. 206. By J. D. REICHARD, Surgeon, United States Public Health Service. Washington. U. S. Government Printing Office, 1933.

This bulletin presents the results of a study of mental ability measured by "language" and "non-language" tests of approximately 500 persons applying for American immigration visas at Warsaw, Poland. In general the results are presented in the form of two schedules; i. e., non-language and language. The results of applying performance tests alone compare favorably with that seen in American school children over 10 years of age. Language tests, however, gave results below that of American school children over 10 years of age, in some language tests the results being strikingly lower.

Sex, schooling and age were significant factors influencing ability, whereas only slight differences were associated with race. Non-language tests show the greatest differences in association with sex, and language tests with schooling. The most consistent variation in results was associated with age, the older age groups uniformly making the poorest showing.

The study is of value to all those agencies, both institutional and communal, that deal with the mental health problems associated with European immigrations.

The Differential Diagnosis of Endocrine Disorders. By ALLAN WINTER ROWE. 220 pages. The Williams & Wilkins Co., Baltimore, Md.

In this book the author has analyzed in summary fashion the observations on over 5,000 cases studied since 1912. The book is divided into three sections: Clinical Considerations, Laboratory Measurements, Special Examinations, under which headings the data are analyzed.

One is struck by the lack of specificity in the tests for the diagnosis under consideration and as the author states the diagnoses were arrived at by a process of elimination. Information of the more recent determinations of the hormones receive no consideration.

It is somewhat difficult to ascertain from the summary data what was the possible or probable error in diagnoses arrived at by the methods indicated.

It may be of value to one interested in endocrine studies to have available in summary form the data of laboratory and clinical findings of such a large group of cases, although nothing essentially new is contributed.

The general reader attracted by the title, "The Differential Diagnosis of Endocrine Disorders" seeking to obtain the detail data with which to make a diagnosis will probably be somewhat disappointed since he will find no clear discussion of the clinical pictures nor a consideration of pathological processes involved. As the author himself states in his conclusion the many considerations which come into play in the individual cases is not dealt with. It is such information, however, that the keen physician seeks to aid him in the clinic.

MEYER M. HARRIS.

Mental Deficiency. First Volume of the Stoke Park Monographs on Mental Deficiency and Other Problems of the Human Brain and Mind. Edited by RICHARD J. A. BERRY, M. D., 249 pages. London. Macmillan and Co., Ltd., 1933.

This volume consists of 17 collected monographs relating to the subject of mental deficiency. Some are printed for the first time, some are reprints or abstracts of other manuscripts. These papers, the majority of which were written by present members of the staff at Stoke Park Colony, have been edited by Berry who needs no introduction to his American associates.

In the foreword Berry says (p. xi): " * * * the 17 contributions which make up this Memorial Volume represent original research, study and thought * * * " The subject matter is approached and discussed from a variety of angles which permit of a fairly complete survey of the field in a rather scientific manner. Even though some of the monographs are of

greater merit than others, one would do well to be fairly familiar with the material contained in each of them.

The first paper, which is entitled *A Practical Method for the Detection During Childhood, of Potential Social Inefficiency and High-grade Mental Deficiency*, deal in large measure with the subject of diagnosis.

Such devices as the *psychogram* are carefully presented. The psychogram, contrived by Berry and Porteus, is an attempt to express graphically, the relation between physical and mental test values in an individual.

In this same paper is taken up in considerable detail the relation of intelligence to brain capacity (volume). The point is made that, broadly, brain size correlates with intelligence; that deviations from the normal size are associated with mental abnormalities. In individual cases, however, such figures may prove to be untrustworthy. This problem is discussed more fully in the second monograph of the book.

The use of psychometric tests in diagnosis is also considered. Berry seems to place considerable confidence in a combination of the Binet and Porteus tests. His warning that the Binet scale "was never intended to carry the full burden of diagnosis" is still too often ignored in actual practice among certain groups.

Papers number VII, VIII, IX and X deal either directly or indirectly with the structure and function of the cerebral cortex. Berry calls attention here, as he has elsewhere, to the phylogenetic development of the cortex; its laminated structure; the arrangement and function of encephalic neurons; the paucity of mature, functioning neurons in cases of abnormal or deficient intelligence; the relation of feeble-mindedness to disturbances of the supra-granular layer of the brain.

Next is considered the question of the mind as related to internuncial neurons; the function of association areas in the brain; latency and choice of response. This material is very interesting and although, in some measure, of a controversial nature, still the author succeeds in presenting an interesting case in favor of his thesis. Frequent references are made to the works of Economo, Watson, Bolton, Hammarberg, Sachs, Tredgold and others.

In the latter part of the book some unusual clinical types are described. Among these is a case of porencephaly, one of cerebellar ataxia, another of vertebral imperfection in an imbecile, syndactylism, etc.

The remainder of the book consists of several papers of presumably less general scientific importance. Some of these are as follows: *Mental Deficiency in the State of Victoria, Australia; An Analysis of the Mental, Physical and Medical Characteristics of a Group of 162 Adult Feeble-minded*

Women; Some Psychological Experiments with Mental Defectives. In a monograph on amentia the writer feels quite strongly that heredity is not sufficiently emphasized in the etiology of mental deficiency. In the concluding paper is a statement by Gordon which, although not novel, will bear frequent repetition (p. 237): "What is amentia to psychiatry may be normality to society as long as the environment of the ament remains suitable to his limited powers of reaction. Once the environment becomes too exacting for his powers the former social ament reveals his degree of inefficiency and becomes proportionately asocial."

Although this book can hardly be considered as outstanding in the field of mental deficiency still it does make a definite contribution. Covering as it does a variety of both controversial and experimental topics it should stimulate thought and investigation along a number of interesting lines.

E. W. MARTZ.

The Dawn of Conscience. By JAMES H. BREASTED. 433 pages. Cloth. \$3.00 net. Charles Scribner's Sons, New York.

In this book Breasted sets out to show that man has not received his moral and social sense from a power imposed upon him from without, but that he has developed it out of his own inherent nature. This, if true, is a highly important conception. It implies that man has within himself the necessary impulses to develop normally and socially. Such characteristics were not attributed to man by early religious concepts of morals, concepts which still hold sway in the minds of many persons. By these early beliefs man was regarded as inherently antisocial and destructive. He was kept in line only by a powerful deity. Still man has developed his own laws and codes, and morals also, if we are to accept the concepts of Breasted. The author takes Egyptian civilization to illustrate his theme, probably because of his familiarity in this field as his books, "A History of Egypt," "The Development of Religion and Thought in Ancient Egypt" and "A History of the Ancient Egyptians" indicate. However, the history of other races or tribes would doubtless have served equally well.

The conception that the driving force for social good and morality comes from within himself rather than from without may appear to carry an anti-religious connotation. This is true in the restricted sense only. The thought that man has the force within him to erect a better civilization, overcome his limitations and wipe out the wrongs and injustices of life should be both an inspiration and incentive to those who believe in progress through man's own effort. The book is a thoughtful and valuable contribution to the knowledge of man's mind.

SANGER BROWN, II.

A Guide for Developing Psychiatric Social Work in State Hospitals.

By HESTER B. CRUTCHER. Foreword by Frederick W. Parsons, M. D.
Pp. 57. Price 50 Cents. State Hospitals Press, Utica, N. Y., 1933.

Miss Crutcher has rendered a signal service in preparing for the benefit of psychiatric social workers a comprehensive guide for the operation of social service departments. The rapid development of social work in State hospitals, and the approval which has been accorded to this activity, has been one of the outstanding advances of the last decade. It has been fortunate for the movement in New York State that it has enjoyed the supervision of one so well qualified to coordinate and stimulate this development as Miss Crutcher. She had at her command not only excellent training in theory and technique, but also a comprehensive experience, all of which become apparent to one who reads this brochure.

The work naturally divides itself into six chapters, which deal with the psychiatric social worker in such aspects as her qualifications, her working relations, the relationship of her work with that of other departments in the institution and in the community. The guide is, as its name would indicate, essentially practical; situations which confront the psychiatric social worker are anticipated and suggestions for meeting them in the most effective and helpful manner are contained in topics, of which the following are only a few: the admission interview, the question of home visits, the use of the social service exchange, the social history, relationship with social agencies during the parole period and the social worker's function in mental hygiene clinics and in community work. The last chapter deals with the organization of the social service office and work. It includes suggestions upon the keeping of the files and recording of work done in the form of reports, and other details essential for the proper collection and preservation of information regarding records and for statistics.

Throughout the book Miss Crutcher places emphasis upon the role of the social worker in contributing to a sustained and consistent attitude for the well-being of the patient and his family, and for promoting the convenience of the physicians who are responsible for the treatment of the patient and the family.

While written especially for the guidance of social workers in mental hospitals, its usefulness is by no means limited to that group. Now that welfare workers and public health nurses are becoming mental hygiene conscious, they too will find much in the book which will meet their needs and the guide will doubtless have, as it deserves, a wide circulation.

HUTCHINGS.

Queer India. By H. GEORGE FRANKS. 240 pages. Cloth \$2.50 net.
William Morrow and Company, New York.

In "Queer India" are the observations of a newspaper correspondent, who has lived for over 12 years in the country, of the customs, manners and practices of the village people of India. His story reveals the mind of the simple native rather than that of the city dweller. He portrays the thoughts of these people in respect to such fundamental matters as life, death, marriage and other subjects. He relates that large masses of the people are governed in their actions by superstition in which belief in magic, witchcraft, charms, amulets and other influences exist to an almost incredible degree. These beliefs induce men to sacrifice their sons, and mothers their first born to appease an unfriendly local diety. These beliefs are so inherent that the people will not or cannot conform to the laws of western civilization. As a result, much that is termed crime is committed because superstition dictates it.

The sacredness of animal life results not only in no proper protection for animals, but in horrible suffering, cruelty and neglect, which would not be tolerated in a western civilization. The practice of suttee has been controlled with difficulty and many widows take their lives on the death of their husbands because it is the custom of the country. Not only child marriage, but many other improper marriages in which women are commercialized are common. Gangsters, from one group of which our modern word "thug" is derived, prey on the village people mercilessly. Murder and theft are rife in many districts.

This book dealing as it does with the mental attitudes of primitive people invites comparison of these states of mind with those existing in mental patients. Certainly thoughts of control and influences from malevolent sources existing in primitive people seem very similar to the delusional trends of mental cases. The parallelism, however, ceases at the point where the insane person would perish in the environment and civilization in which he finds himself whereas the primitive tribesman is successful in his own community. That part of the book dealing with child marriage, caste, crime, religion, etc., are informative, but of less psychiatric application than the several chapters which deal with the mental attitudes and instincts of the village people.

The Nervous Child at School. By H. C. CAMERON, M. A., M. D., F. R. C. P., Physician in Charge of Children's Department, Guy's Hospital, London, England. 12 Chapters. 153 pages. Oxford University Press, London, 1933.

The author discusses the subject of the nervous child in an unusual, sympathetic and stimulating manner. In his preface he remarks that psychiatry has come to occupy itself actively with the problems of behavior of children. He pays a tribute to the child guidance clinic, with special reference to the American clinic. At the same time, the possession of these instruments does not make less important the activities of the rank and file of parents, school masters and doctors.

He discusses the difficulties of children in making adjustments, both in the preparatory schools and in the large public or boarding schools. Different problems present themselves in each, due to different types of discipline, tradition, and teachers.

In chapter three, he discusses fatigue in school life and indicates the relationship between the bio-chemical reactions which result in such conditions as acidosis, and the unhappiness and mal-adjustment often seen in the child. Fatigue and unhappiness in school life stand in a constantly changing relationship of cause and effect. Failure in school results in anxiety.

Many health problems are discussed, both from the physical and psychological point of view: abdominal pain, persistent rise of temperature, cardio-renal disturbances, convulsions, and disorders of sleep. Disorders of conduct such as lying, stealing, playing truant, masturbation, have a close relation to fatigue, as well as to unhappiness. In the treatment of bed-wetting, the author takes a most sympathetic view and deplors harsh treatment, either by punishment or publicity. Stammering is looked upon as an emotional reactions, and must be treated by restoring the confidence of the patient in himself. This is looked upon as more important than formal speech training.

Special abilities and disabilities are discussed in Chapter 10. The last chapter in the book is entitled "Conclusions." The author states: "To me it seems that unhappiness and fatigue acting and reacting one upon the other, are together responsible for a great deal of what may be called failure in school, and that today, for a variety of reasons, the problem of the nervous child at school is becoming increasingly common."

J. L. TOWER.

Social Case Work—An Outline for Teaching. Edited by MARY A. CANON and PHILIP KLEIN. 626 pages. Columbia University Press, New York.

In spite of the fact that social case work has been a subject of instruction for many years, there has been no adequate text for such a course. For this reason the thinking and practices of such eminent people as those contributing the material for this publication is especially welcome.

The text is conveniently divided into three parts and the appendix, which contains a syllabus on social work.

Part I enumerates various pedagogical problems encountered in the teaching of social work. The keeping of professional education within the scope of the best contemporary practice and the keeping of curricula within practical limits are not the least of the difficulties in the teaching of social work.

Part II present five case records with the material that is given to student social workers in discussing these cases. These records are so chosen that they present almost the entire gamut of human experiences which the social worker may encounter in her practice.

Part III gives the content of two courses in social case work, one of these being on case work and the other a course in interviewing. The course in social case work integrates the practical experience the student has in the field with the various techniques in common practice and brings to bear the knowledge from various fields upon points in question. The technique of interviewing is discussed in detail from a teaching standpoint. This material is also closely tied up to the student's practical experience.

Everyone who has been thinking in terms of social work as a profession will be interested in this volume and those who want to know that training has to offer the social worker, will do well to have this book for reference.

HESTER B. CRUTCHER.

Paralysis in Children. By R. G. GORDON and M. FORRESTER BROWN. 328 pages. Oxford Medical Publications. Humphrey Milford, London, 1933.

This compact volume dovetails the field of neurology with orthopedics. The neurological aspect has the upper hand as well it might, since, as the title indicates, this is primarily a neurological (motor) field.

As stated in the preface, the book is divided into three parts. The first part serves to orient the reader in regard to the processes underlying neuromuscular function. There is a concise, readily understandable discourse on neurology beginning with the reflex arc and including the various motor

pathways, centers and ganglia of the central nervous system. This material is all illustrated by schematic diagrams and charts. Next are given the principal causal factors of paralysis in children together with the various gross physical signs which accompany these lesions.

Part II of the book covers briefly all of the various paralyses—chapter by chapter, starting with the muscular dystrophies and running through scleroses, choreas, atrophies and others. Each condition is intelligently discussed and most of them are illustrated by short case studies.

Part III deals with treatment of the paralyses. This includes the well-known methods of rest, massage, electricity, re-education, hydrotherapy, splints, etc. Each item is discussed in a clear, comprehensive manner.

Although there is relatively little new material offered in this volume still the authors have succeeded in producing a valuable little book for the medical man or student. The material is presented simply and compactly with a scattering of illustrations. This book on childhood paralyses is especially useful as a reference work for ready facts either of a neurological or an orthopedic nature.

E. W. MARTZ.

The Psychological Effects of Oxygen Deprivation (Anoxemia) on Human Behavior. By ROSS A. MCFARLAND, Ph. D. 135 pages. Archives of Psychology, No. 145. New York, 1932.

The first part of this monograph is a rather thorough review of the past experiments and experiences of individuals who have been subjected to oxygen deprivation. The major emphasis is placed upon the effects of such deprivation upon physiological and psychological functions. Of special psychiatric interest is the section which reviews the experimental work, indicating a relationship existing between anoxemia, muscular fatigue, and neurasthenia. The general loss of nervous and muscular control and marked fatigue, shown in this condition, bears many similarities to the symptomatology of the neurasthenic individual.

Part II is a report of an experimental study carried on with 16 normal individuals who were subjected to experimental oxygen deprivation and who were given a series of psychological tests during such deprivation. In general it was found that simple sensory and motor responses are not seriously impaired until the subject approaches collapse from oxygen want when the loss appears to be fairly sudden. Choice reactions are impaired earlier than simple reactions. Higher mental processes involving memory and attention are impaired during anoxemia, although awareness of what is going on per-

sists until the unconsciousness intervenes. The close relationship between an adequate oxygen supply and the loss of muscular control and accentuated fatigue is demonstrated. Due to the fact that many of the reactions observed in this study are similar to those present under continued emotional or mental strain, or in the syndrome of neurasthenia, oxygen want is suggested as a possible symptom of all such conditions.

In general the author is guarded in his claims and points out that further work is necessary in order to substantiate the hypothesis that neurasthenia is causally connected with anoxemia.

LANDIS.

NOTES

—The Annual Conference on Birth Control and National Recovery will be held at the Mayflower Hotel, Washington, D. C., January 15-17, 1934.

—Dr. S. Harcourt Peppard, former director of the Bureau of Mental Hygiene of the Connecticut State Department of Health, has been appointed clinical director of Blythewood Sanitarium.

—The eleventh annual meeting of the American Orthopsychiatric Association will be held at the Palmer House in Chicago, Ill., February 22, 23 and 24, 1934. Dr. Phyllis Bartelme is chairman of the committee on arrangements. The president of the association is Dr. Frederick H. Allen of Philadelphia and the secretary-treasurer, Dr. George S. Stevenson of New York.

—The American Psychiatric Association will hold its next annual meeting in the Waldorf-Astoria Hotel in New York City, May 28-June 2, 1934. The president of the association for the ensuing year is Dr. George H. Kirby, of New York City, and the secretary is Dr. William C. Sandy of Harrisburg, Pa. Dr. Samuel W. Hamilton, of Bloomingdale Hospital, White Plains, N. Y., is chairman of the program committee.

—A bas-relief of Dr. Thomas W. Salmon has been placed in the New York Psychiatric Institute and Hospital in memory of his contribution toward the establishment and planning of the institution. The tablet will be unveiled with appropriate ceremonies on January 26, 1934. The memorial is the gift of a group of men who were associated with Dr. Salmon when he was doing his remarkably constructive work as medical director of the National Committee for Mental Hygiene and professor of psychiatry in Columbia University.

—According to a dispatch sent to the New York Times by its Berlin correspondent, December 21, 400,000 Germans are to be sterilized under a new law which will go into effect January 1, 1934. The law requires every physician to report the persons within his knowledge who are subject to the sterilization provisions. The persons reported will have to appear before the so-called "hereditary health courts" of which 1,700 are to be established in various parts of the country. These courts will examine the persons reported and will decide whether they are proper subjects for sterilization. It is estimated that the number of persons in the prescribed classes

are as follows: Congenital idiocy, 200,000; schizophrenia, 80,000; manic-depressive insanity, 20,000; epilepsy, 60,000; hereditary blindness, 4,000; deafness, 16,000; severe physical deformity, 20,000; hereditary alcoholism, 10,000.

—Dr. L. Pierce Clark, prominent neurologist and psychiatrist and former president of the New York Psychiatric Society, died from heart disease at his home in New York City, December 3, 1933, at the age of 63.

Dr. Clarke was born at Ingleside, N. Y. He received his medical degree from New York University in 1892 and at once began to make a specialty of neurology. Since 1893, he had been consulting neurologist to the Manhattan State Hospital and the Craig Colony for Epileptics, and visiting neurologist to the New York City Children's Hospital for mental defectives on Randall's Island. He was formerly a manager of Letchworth Village for mental defectives at Thiells, N. Y., and president of the National Association for the Study of Epilepsy, the New York Neurological Society and the American Psychological Association.

Dr. Clarke attained prominence through his investigations and through magazine articles and books. He was especially interested in convulsive disorders, mental deficiency and psychoanalysis.

—The continued reduction in the death rate from pulmonary tuberculosis is clearly shown in an article by Dr. Frederick L. Hoffman published in the *Spectator* for October 25, 1933. Dr. Hoffman gives a comparative table of annual death rates in a group of 59 principal American cities from 1910 to 1932. The table shows an almost steady decline in general average death rates per 100,000 population from 174.4 in 1910 to 56.3 in 1932. Had the 1910 rates prevailed in 1932, the number of deaths in these cities from pulmonary tuberculosis would have been approximately 58,000 instead of 18,615.

Dr. Hoffman calls attention to the fact that there are several cities in which high death rates from pulmonary tuberculosis are still found. Some of these cities have large negro populations among whom the death rate is much higher than among whites.

The success being attained in the warfare against tuberculosis lends encouragement to those who are engaged in the prevention of other forms of disease.

—The Association for Research in Nervous and Mental Diseases held its fourteenth annual meeting in Hotel Commodore, New York City, December 28 and 29, 1933. The sessions were conducted by President J. Ramsay

Hunt, M. D., of New York City. The general theme of the program was the "Biology of the Individual." Papers relating to the theme were presented by prominent research workers as follows:

"Historical Aspects of Individuality and Constitution," by Smith Ely Jelliffe, M. D., of New York.

"Body-Build and Its Inheritance," by Charles B. Davenport, Ph. D., of Cold Spring Harbor.

"The Role of Physico-chemical Environment in Structural and Functional Expression," by Charles R. Stockard, Ph. D., of New York.

"The Conditioned Reflex in Different Constitutional Types of Dogs," by William T. James, Ph. D., and O. D. Anderson, Ph. D., of New York.

"The Progress of Physical Maturity and Mental Expansion in Childhood," by T. Wingate Todd, of Cleveland.

"The Ontogenetic Patterning of Infant Behavior," by Arnold Gesell, M. D., of New Haven.

"Constitution and Internal Medicine," by Lewellys F. Barker, M. D., of Baltimore.

"Endocrine Types of Constitution," by Walter Timme, M. D., of New York.

"Biochemical Aspects of Constitution," by Max Goldzieher, M. D., of New York.

"Constitutional Aspects of Personality Types with Special Consideration of the Cycloid and Schizoid," by Eugen Kahn, M. D., of New Haven.

"The Eidetic Type," by Heinrich Kluver, Ph. D., of Chicago.

"Personality and the Psychoses," by C. MacFie Campbell, M. D., and Karl M. Bowman, M. D., of Boston.

"The Schizophrenic Personality with Special Regard to Psychometric and Organic Concomitants," by R. G. Hoskins, M. D., and E. Morton Jellinek, of Boston.

"Individuals and Their Human Environment (Society)," by Floyd H. Allport, Ph. D., of Syracuse.

"Crime and the Individual," by William Healy, M. D., of Boston.

"Personality in the Light of Psychoanalysis," by Paul Schilder, M. D., of New York.

"Personality Concept in Relations to Graphology and the Rorschach Test," by Oskar Diethelm, M. D., of Baltimore.

"Constitutional Factors in Psychosexual Development; Their Relation to Personality Disorders," by George W. Henry, M. D., of New York.

THE PSYCHIATRIC QUARTERLY

HORATIO M. POLLOCK, Ph. D., Editor

Medical Editorial Board

FREDERICK W. PARSONS, M. D.,

CHARLES BERNSTEIN, M. D.,

CLARENCE O. CHENEY, M. D.,

WILLIAM T. SHANAHAN, M. D.,

GEORGE H. KIRBY, M. D.,

HOWARD W. POTTER, M. D.,

RICHARD H. HUTCHINGS, M. D.,

NICHOLAS KOPELOFF, Ph. D.,

FREDERICK W. PARSONS, M. D., Commissioner

PUBLICATION OFFICE
Utica State Hospital, Utica, N. Y.

EXECUTIVE OFFICE
T. E. McGARR, Manager
18th Floor, State Office Building, Albany, N. Y.

Annual subscription, Quarterly	-	-	\$2.00
Single copies	-	-	.50
Annual subscription, Supplement	-	-	1.00
Single copies	-	-	.25

STATE HOSPITALS PRESS,
UTICA, NEW YORK



TABLE OF CONTENTS

	PAGE
Narcosis and Mental Function. By J. H. Quastel, D. Sc., Ph. D. F. I. C.....	227
The Relation of Startle Reactions to the Cardiac Cycle. By Carney Landis, Ph. D., and T. W. Forbes, Ph. D.....	235
Psychogenic and Constitutional Factors in Homosexuality; Their Relation to Personality Disorders. By George W. Henry, M. D.	243
A Report of Several Cases of Folie a Deux. By W. Roberts Webster, M. D., C. M.....	265
A Case of Cerebral Metastatic Melanoma Simulating Cerebrospinal Meningitis and Encephalitis. By Joseph S. Grewal, M. D., and William E. Kelly, M. D.....	276
A Cephalic Monster. A Report of a Case of an Unusually Voluminous Meningoencephalocele. By David T. Dubow, M. D., New York, N. Y., and Frank M. Kramer.....	286
The Arm-to-Carotid Circulation Time in Normal and Schizophrenia Subjects. By H. Freeman, M. D.....	290
Coexistence of Psychoses of a Different Type in the Same Individual. By Alfred Gordon, M. D.....	300
The Mental Treatment of Stammering. By L. Pierce Clark, M. D.....	306
Organization of Psychiatric Clinics. By Neil D. Black, M. D.....	319
What the Community Worker Expects From the Mental Hospital. By Alice J. Webber.....	326
What the State Hospital Expects of the Community Social Worker. By Eva M. Schied.....	331
Hereditary and Environmental Factors in the Causation of Dementia Præcox and Manic-Depressive Psychoses. By Horatio M. Pollock, Benjamin Malzberg and Raymond G. Fuller.....	337
Book Reviews	372
Presentation by the Thomas William Salmon Memorial Committee of a Bas-Relief Portrait of the Late Dr. Thomas William Salmon to the Psychiatric Institute and Hospital.....	423
Notes	431



NARCOSIS AND MENTAL FUNCTION*

BY J. H. QUASTEL, D. Sc. Ph. D., F. I. C.,

DIRECTOR, RESEARCH LABORATORY, CARDIFF CITY MENTAL HOSPITAL, WALES

Experience is surely showing us that there is a close and intimate relationship between the workings of the mind and the chemical and physical events which proceed in the body. The president of this association (Sir Frederick Hopkins, P. R. S.) has already commented on the fact that we may count as one of the principal revolutions of modern medical science our ability to follow with intelligence some of the chemical phenomena underlying visible events and changes in health and disease. Is it too much to hope that we may achieve a similar success in the investigation of one of the most important branches of knowledge concerning man, the phenomena embraced by normal and abnormal psychology?

The study of the effects of abnormal conditions frequently results in light being thrown on the nature of the normal sequence of events and I propose in the first place briefly to describe some of the psychological reactions following the exposure of the body to abnormal circumstances.

The particular abnormal condition of which I wish to speak is that of oxygen deficiency.

Much work has been carried out on this subject notably by Barcroft, Haldane and others and an excellent statement of the present situation is contained in a recent article of McFarland. (*Archives of Psychology*, 1932.)

When oxygen want is produced as in an aeroplane ascent the first effect is stimulation resulting in a feeling of well-being. This stage is followed gradually by a state of sensory and mental dullness. When the oxygen percentage is reduced one-third, i. e., from 21 to 14 per cent (at approx. 12,000 ft.) the aviator is conscious of an alteration of breathing. At 10 per cent oxygen there is marked mental incapacity. As the ascent is continued memory and judgment become impaired, appreciation of time is affected and sight and hearing are dulled. "In spite of his obviously foolish responses, the aviator feels quite confident that his mind is clear and his judgment

*Address read before psychological section of the British Association for the Advancement of Science in Leicester, September, 1933.

sound." "He often becomes possessed of fixed ideas and being unable to reason does foolish things, frequently being entirely unaware of any alteration in his behavior." Thus there is definite loss of insight, one of the most characteristic features of mental disorder. Loss of consciousness occurs if the aviator continues to ascend.

Barcroft reports that on journeys to high altitudes he has witnessed emotional reactions similar to those experienced after an overdose of alcohol, namely depression, apathy, and drowsiness, or excitement, joyfulness and general loss of self-control. "A person may sing or burst into tears for no apparent reason or be extremely quarrelsome, indolent and reckless." "Stupid arithmetical errors are made" and frequent repetition of words and phrases are noticeable. "Anoxaemia from a psychological point" it has been concluded from a study on pilots during the war" may be compared to the progressive stages of alcoholic intoxication with decreased capacity for reaction at various levels accompanied by occasional spurts of improvement due to greater effort. Although the effects are definite they may come on the aviator suddenly and unawares. Frequently there is a feeling of well-being but this is generally followed by abnormal reactions such as euphoria, lack of effort, anger, destructiveness, fear and silly laughter."

"Now it may be argued that altered emotional and mental behavior on mountain expeditions or in flying may be due to actual fatigue and not to oxygen want. But this is apparently not the only or real cause since similar disability occurs in chambers (whose oxygen content can be altered) at sea level without any exertion."

Many observers have noted the close similarity between such abnormal behavior and that following the action of narcotics; so much so that the action of the narcotic has been considered as due to a production of anoxaemia. There has been ample opportunity to observe the behavior of individuals under narcosis at the Cardiff Mental Hospital where prolonged narcosis treatment is used extensively. My colleague, Dr. Ström-Olsen, reports that in the intervals between periods of sleep the patients (who are undergoing narcosis treatment) show, apart from their

usual symptoms, (and this refers to non-psychotic patients as well as the psychotic) clouding of consciousness, confusion and defective attention. The power of comprehension is diminished, the thinking difficult and at times there is perseveration. They are frequently disorientated for time and are amnesic; intelligent co-operation from a psychological standpoint is impossible. They show euphoria and other psychological features dependent on the removal of inhibitions analogous to that seen in alcoholic intoxication. Primitive reactions are seen in the form of silly and uncontrolled behavior. Some patients are lachrymose, others aggressive and paranoid. These features may continue until a short time after narcosis and must be regarded in the greater number of instances as belonging to the narcotic.

The similarity between the psychological reactions following oxygen want and those found in light narcosis, and the resemblance of these to the reactions found in certain types of mental disorder have attracted the attention of a number of investigators; it has become a likely hypothesis that certain forms of mental disorder may find their origin in a physiological state corresponding to anoxaemia.

To understand this further it has become necessary to acquire more information on the physiological or chemical mechanism of narcosis. In spite of the large amount of work which has been carried out on narcotics we have remained comparatively ignorant of the manner in which narcotic drugs bring about the unconscious state. Work has been carried out on this problem at the Cardiff Mental Hospital for the last two or three years and a certain amount of light has been thrown on the phenomenon.

To be brief it has been shown* that all narcotic drugs tested—including the gaseous ones—have one particular property in common. They have the effect of inhibiting, at low concentrations, the oxidation in the nervous system of substances important in carbohydrate metabolism—such as glucose and lactic acid. Moreover the effects are practically specific for these substances, for if certain other substances are investigated which are freely oxidized by the brain this inhibition of oxidation does not take place. The effects of typical narcotics and their specificity of behavior in in-

*J. H. Quastel and A. H. M. Wheatley. *Proc. Roy. Soc.*, 1932. B. 112, 60.

hibiting oxidations is shown in Table 1. This result is of considerable significance for it is a well-known fact that carbohydrate breakdown represents the dominating feature of respiration in the nervous system. It has further been shown that among narcotics of the same chemical type those having the greater hypnotic activity also have the greater inhibitive action in the oxidation of substances such as glucose and lactic acid which, so far as we know

TABLE 1. PERCENTAGE INHIBITION OF EXTRA O_2 UPTAKES BY BRAIN TISSUE, DUE TO VARIOUS METABOLITES

Narcotic (0-12 per cent)	Glucose	Sodium lactate	Sodium succinate
Allylisopropyl-barbituric acid (Numal)	73	71	2
Phenylethyl-barbituric acid (Luminal)	94	79	0
Diethyl-barbituric acid (Veronal)	20	22	0
Ethylurethane	17	16	0
Chloretone	93	88	0
Hyoscine	79	73	0
Chloral hydrate	66	90	0
Morphine	32	30	0

at present, form the main fuel of the nervous system. The access of oxygen to the nervous cell is not affected, nor is its ability to affect oxidations disturbed—the main effect of the narcotic appears to be at the nerve cell where it interferes with the activation of the lactic acid molecule, a process which is necessary before its oxidation can take place. Another series of investigations* has shown that the narcotic and lactic acid compete for the cell catalysts involved in the activation process. The competition is reversible and as the narcotic disappears from the system the nerve cell regains its ability to burn lactic acid.

Taking the facts as a whole we are led to the following comparatively simple picture of the mechanism of narcosis: Absorption of the narcotic takes place from the blood stream at a nervous center. There it competes with lactic acid for the cell catalysts, hindering the access of lactic acid to these catalysts and lowering the effective concentration of lactic acid available for oxidation. Hence the supply of energy is diminished; this produces a decrease in func-

*D. R. Davies and J. H. Quastel. *Biochem. J.*, 1932. 26, 1672.

tional activity of the nervous centers in question and narcosis may ensue.

The importance of lactic acid oxidation in the brain is seen also in the recent interesting experiments* of Peters and his colleagues in Oxford. These workers have demonstrated that the brains of pigeons suffering from polyneuritis show a distinctive feature: a decreased ability to burn lactic acid. The addition to the brain of the vitamin, whose absence from the diet of the pigeon causes polyneuritis, restores the capacity of the brain to burn lactic acid. Here the mechanism of bringing about a disturbance of lactic acid oxidation is apparently very different from that induced by narcotics; yet the end result is very similar, a considerable disturbance in the functions of the nervous system.

Much yet has to be done—but it is clear from experiments so far that any mechanism resulting in deficient carbohydrate or lactic acid oxidation in the nervous system may well play a part in the causation of disorders of the functional activity of the nervous system.

We have seen that the present evidence points to narcotics acting primarily by producing a state equivalent to anoxaemia at the particular parts of the nervous system where they are absorbed. We have seen also that the psychological effects of narcosis and of oxygen want are very similar to each other and moreover they resemble those found in certain types of mental disorder. Can we now go a step further and consider the possibility of certain psychotic disorders having their origin in a state equivalent to oxygen deficiency at certain parts of the nervous system?

Some evidence in favor of such a possibility would be forthcoming if it could be shown that the body itself can produce substances which behave in a manner similar to narcotics.

Actually this can be done. Investigations** (at Cardiff) have lately shown that a number of substances which are known to be normally produced in the gut (by bacterial action) have precisely similar effects to those of the narcotics on the oxidation of glucose or of lactic acid in the brain at equivalent concentrations (see Table 2). These substances appear to be mainly breakdown prod-

*Gavrilescu, Neillklejohn, Passmore and Peters. 1932. *Proc. Roy. Soc. B.* 110, 431.

**J. H. Quastel and A. H. M. Wheatley, 1933. *Biochem. J.* 27, 1609.

TABLE 2. PERCENTAGE INHIBITION BY AMINES OF EXTRA OXYGEN UPTAKES, BY BRAIN TISSUE, DUE TO VARIOUS METABOLITES

Amines	Glucose	Sodium lactate	Sodium succinate
Beta Phenyl-ethylamine	52	33	0
Beta Phenyl-B-oxy-ethylamine	53	44	0
Mescaline	76	62	0
Tyramine	87	88	79
Indole	41	47	3
Isoamylamine	76	79	0

ucts of tyrosine and tryptophane. It is interesting that mescaline, a substance related to tyrosine and well known for its production of visual hallucinations, has a similar action. Now most of the substances in question—tyramine, indole, etc.—are normally detoxicated in the body (chiefly in the liver) so that not more than traces can normally circulate in a healthy individual.

Let us grant, however, a disturbance in hepatic functions and it is not difficult to visualize the presence in the blood of more than ordinary amounts of these toxic substances whose circulation carried over a lengthy period would create a condition in the nervous system the psychological aspects of which would be expected to resemble those found in anoxaemia or light narcosis. Experiment has yet to show such a disturbance in detoxicating processes among certain psychotic types and it is for this reason that attention is now being focussed on this particular problem.

Let us now consider another aspect of mental disorder—its treatment.

One of the most valuable therapeutic weapons placed in our hands within recent years is that of prolonged narcosis. The patient is put to sleep for a fortnight or so—a long rest for the brain.

The treatment by prolonged narcosis has been tried by numerous workers and without exception they agree that the treatment is successful in many cases in bringing about an improvement in the mental condition. The toxicity of the drug, however—which has to be administered over so long a period—has caused most people to give up the treatment sooner or later. The fact that the

production of toxic symptoms necessitated the cessation of the treatment before alleviation of the mental illness, has been the main hindrance to the development of the treatment. The mortality in a large number of cases collected by Müller was as high as 5 per cent and this very serious drawback has tended to bring narcotic treatment into disrepute. Yet the undoubted fact that prolonged narcosis treatment can bring about not only temporary but often permanent improvement is itself such an advance that a search for a modified—less-toxic—method of treatment became necessary.

Such a modified method came into our hands as soon as it was realized experimentally that carbohydrate metabolism in the body is affected by narcotics. It was found that most patients undergoing prolonged narcosis treatment developed ketonuria—another proof of an upset carbohydrate metabolism—and the experiment was tried of giving the patient a dose of glucose and an injection of insulin at the same time as the administration of the narcotic. The result was successful.* Ketonuria and other serious complications cleared up and with our modified method of glucose-insulin treatment, the narcosis treatment has become practically safe. This means that a far greater number of patients, than hitherto has been possible, can be given the treatment without serious danger. The clinical aspects of the treatment are to be given in detail in a forthcoming paper by my colleagues, Dr. Ström-Olsen and Dr. Northcote, but I may say that extremely good results have been obtained in the psychoneuroses and in manic-depressive insanity. Here, over 80 per cent of the cases treated showed improvement or recovery. These cases it is true have a good prognosis but this fact has been allowed for in evaluating results. The treatment by narcosis, if it is successful, shows itself almost immediately the treatment is finished and only these cases are regarded as having benefited by the treatment. Naturally, cases which it is known will recover in a few weeks are not given the treatment. Both cases of mania and melancholia do well. With early schizophrenia good results have also been obtained. A very important aspect of prolonged narcosis treatment is the aftercare of patients who have shown improvement. Once intelligent cooperation can be secured psychotherapy

*J. H. Quastel and R. Ström-Olsen. "Lancet." 1933, p. 464.

is useful in preventing a relapse. It consolidates and maintains the improvement already obtained by the action of the narcotic.

What is the rationale of prolonged narcosis treatment? Here we are in the region of speculation. Yet perhaps it is permissible to offer a hypothesis built on the facts already observed. If we judge a functional psychosis to be due primarily to a hyperactivity of certain nervous structures, or a depression of activity of others, the end result is the same; there will exist an abnormal production of certain metabolites in the brain, or possibly of harmful substances, whose presence brings about a disturbance in the normal equilibria of the nervous system. In prolonged narcosis a depression of nervous activity is secured, compared with which the disturbance due to the abnormal metabolites or harmful substances may be regarded as small. During the long period of narcosis, these substances—whether they be metabolites produced in excess of their usual quantities or toxic substances—are eliminated by the body and not replaced because of the lowering of activity due to the narcosis. After a sufficiently long period of narcosis, the body is allowed to recover and assuming no permanent damage to the nervous system this should become relatively free from the abnormal conditions present before narcosis. Granting such a view it would follow that organic psychoses will not benefit from prolonged narcosis treatment, nor should those psychoses which are due to the presence of an active septic focus benefit (except temporarily) until the latter has been eliminated. Experience so far agrees with these conclusions but it is early yet to make any definite decision.

Finally it may be remarked that it is encouraging to find that experimental investigations of a chemical or physiological nature have a definite bearing on the understanding of psychological and psychiatric phenomena and, what is equally important, aid in the adequate treatment of mental disorder. It is surely important that this should be realized by the public—for it has been too often thought that mental disorder lies outside the realm of that type of experimental investigation which has proved so important in the understanding and the treatment of disease.

THE RELATION OF STARTLE REACTIONS TO THE CARDIAC CYCLE*

BY CARNEY LANDIS, PH. D., AND T. W. FORBES, PH. D.,

NEW YORK STATE PSYCHIATRIC INSTITUTE AND HOSPITAL

In 1929 Landis and Slight reported an experiment which was directed toward the measurement of relative balance of the control of the vagus and cardiac accelerator nerves to the heart. This problem was suggested by the hypothesis of a balanced function in the autonomic nervous system, and the guess that the changes in the systolic-diastolic ratio time of the heart beat might be an indicator of that balance. The experiment did not successfully demonstrate anything regarding this hypothesis. However, it was shown that there was a tendency for stimulation which occurred at certain points in the cardiac cycle to be productive of electrical irregularities which appear on the cardiogram, while stimuli occurring at other points in the cycle were comparatively ineffective. This chance finding led to the present experiment.

Electrocardiograms and pneumograms were taken on a group of 11 normal adults free from cardiac abnormalities and from psychopathic symptoms. In eight cases (Series 1) the records were made by means of Lead II (electrodes attached to the right arm and left leg). In three cases (Series 2) the record was made by affixing with adhesive tape, one electrode over the upper sternum and the second electrode just below the left nipple. The tracings which we obtained for Series 2 are quite comparable to the usual Lead II record. In all experiments we placed 10,000 ohms in series with the subject and the galvanometer, in order to swamp out the greater part of the reflex galvanic skin response. Respiration was recorded photographically on the electrocardiogram by means of a Sommer pneumograph and a moving pointer from a tambour. In addition to these records, the electrocardiograms made on 10 normals and 20 psychopathic patients and reported by Landis and Slight (1929), have been re-examined and will be included, designated as Series 3 of the present study.

At intervals, during the first 20 minutes of the experiment, (Series 1 and 2), the subject was stimulated by a sudden yell, the

*Various aspects of this experiment have been presented before the American Physiological Association, Cincinnati, April, 1933, and the American Psychological Association, Chicago, Sept., 1933.

blast of an automobile horn, or the sounding of a single stroke gong. Subsequent to 8 or 10 such stimuli, 1.25 to 1.50 c.c. of 1-1000 adrenalin was administered subcutaneously. As soon as the onset of pronounced muscular tremor indicated that the adrenalin had become effective, the same stimuli were repeated at irregular intervals during a period of 40 to 60 minutes. In Series 2 the variety of stimuli was increased by the use of a pistol shot and the burning of a magnesium flash-lamp. In both series each subject was recalled 5 to 6 hours after the administration of the adrenalin and retested with the same stimuli as were used in the first two periods. In Series 3 four records were taken; two records without stimulation and two in which a heavy hammer unexpectedly struck against a large empty tin can during the taking of the cardiogram. Figure 1 is an illustration of the types of typical irregularity which appeared in approximately one-third of the records in the first or second heart beat following startle stimulation. Irregularities in which inversions of the regularly designated cardiac electrical waves were shown, were called Type I. Small irregularities which do not appear to be due to action currents from skeletal muscle were called Type II. Heightened waves in the regular cardiogram were called Type III. Slow electrical waves, apparently neither cardiac nor skeletal in origin were called type IV. Rapid electrical waves of a more or less regular form, presumably derived from skeletal action currents, were called Type V. In 464 instances of stimulation 114 irregularities were noted. Of these, 5 irregularities were classed as Type I; 5 classed as Type II; 10 classed as III; 4 classed as IV; and 90 classed as V. It seems most probable that most of these irregularities are not cardiac in origin but are due in almost every instance, to skeletal muscular twitches or to quick changes in the resistance at the electrode which accompany such muscular twitches. Whatever the actual basis of these irregularities may be, there is no question of their occurrence. In all probability they are but rarely *cardiac* in origin.

To investigate the effect of stimulation occurring at various points in the cardiac cycle we designated by numbers (Fig. 2) 10 points in the electrocardiogram with respect to the conventionally designated electrical waves. We then determined the percentage

frequency of irregularities or absence of such irregularities with respect to the stimulation, which occurred at each of the numbered points.

Graph 1 (Fig. 2) shows the course of the percentage frequency of these irregularities with respect to synchronization of stimuli with the designated points in the cardiogram. It will be noted that points 1, 6 and 9 are points of most frequent irregularity. Graph 2 (Fig. 2) shows the irregularities which occur in both Series 1 and 2 *during the adrenalized state*. Here we find points 1, 6 and 8 showing the greatest frequency of irregularity. In Graph 3 (Fig. 2) we have the percentage frequency for all cases in Series 1, 2 and 3 in all non-adrenalized conditions. Here we find points 1, 6-7, and 9 most susceptible.

It would seem from these three graphs that if the startle stimulus occurs at the beginning of the P-wave (according to Lewis (1925) the beginning of the auricular complex) or at the S-wave or middle of the T-wave (according to Lewis, during the ventricular electrical complex) it has a distinct tendency to produce irregularities, while if the stimulus occurs at other points of the cardiac cycle, it tends to be ineffective in producing irregularities. It is to be noted that adrenalin does not markedly change these susceptibility points, although it does increase the average frequency of such irregularities.

When our records were examined with respect to synchronization of certain points in the respiratory cycle, at which stimulation occurred, with relation to the occurrence of irregularities, we found that the irregularities did not seem to be related to any particular point in the respiratory cycle. When the material was tabulated for the variety of stimulus which was used, we found no particular susceptibility in the group as a whole, although certain individuals were more susceptible to one variety of stimulation than to another. These relations were not altered by adrenalin.

The material was then tabulated for the 55 possible combinations of respiratory time and cardiac time provided by our method of analyzing the data. From this tabulation it appeared that when the stimulus occurs at the onset of inspiration together with the beginning of the P-wave (startling auricular complex) irregulari-

ties are most apt to occur; (7 cases out of 12 in which this combination occurred showed an irregularity). The stimuli were ineffective when the T-P interval occurred at the end of expiration; that is, during the period of cardiac and respiratory inactivity. These relations were not altered by adrenalin.

In order to determine the effect of startle stimulation upon the pulse rate we measured the elapsed time for the five heart beats before stimulation, and compared it with the time for the five beats succeeding stimulation. In a control test we found that the pulse rate for any five consecutive beats may vary as much as 10 per cent in either direction without known external stimulation. Because of this we have arbitrarily discarded all alterations in rate of less than 10 per cent change in the five beats following stimulation, as not being clearly related to the stimulation. Graph 4 (Fig. 2) shows the percentage frequency of increase or decrease of more than 10 per cent in the pulse rate, for the first five heart beats after stimulation, with respect to the time of stimulation and certain designated points in the electrocardiogram. The solid line indicates the percentage frequency in the cases before and after the adrenalized state, while the dotted line represents cases occurring during the adrenalized state. It is to be noted that adrenalin seems to stabilize the pulse changes rather than to accentuate them. In Series 2 where the stimuli were more effective, this is shown more clearly than in Series 1 and 3. In the non-adrenalized state points 7 and 10 show the greatest percentage frequency of pulse changes. In the adrenalized state the greatest frequency is found at point 2.

As was stated above, 10,000 ohms were placed in series with the subject and the galvanometer in order to swamp the galvanic skin response. In spite of this swamping the response occasionally did appear on the cardiogram following stimulation. We have studied these occurrences with respect to the designated points on the cardiogram. Due to the small number of such responses, together with the rapid decrease in intensity of the response as psychological adaptation to stimulation took place, we do not feel that these results are more than suggestive. However, we may tentatively state that adrenalin seems to blot out rather than to accentuate the response, and that when the response does occur, it has its lowest

percentage frequency of occurrence during the ventricular systole and a higher frequency during the auricular complex.

From this study, which is a preliminary one, it seems that it is possible to produce irregularities in the electrocardiogram which have a tendency to occur when the auricular or ventricular complex is just starting. The susceptibility of the organism to these irregularities is accentuated by adrenalin. The variations in pulse rate and in the appearance of the galvanic skin response tend to be stabilized during the adrenalized state as compared to the non-adrenalized state. In general the study indicates that the ability of a startle stimulus to produce irregularities is governed in part by the phase of the cardiac cycle at the time at which the stimulation occurs and that this cardiac government is seconded or assisted by the phase of the respiratory cycle.

Our present experiment is not conclusive because we have been unable to synchronize stimulation with any of the vital rhythms. We were forced to stimulate repeatedly in order to obtain by chance, the desired synchronization. Furthermore, there is psychological adaptation to the stimuli which we have employed and a great deal of doubt concerning the precise basis of the irregularity shown on the cardiogram. We do feel, however, that we have fairly positive evidence for one fact; namely, that coincidence of the stimulus with certain "susceptible" phases of the cardiac cycle gives rise to an increased frequency of electrical irregularities appearing in the cardiogram, changes in pulse rate, and possibly the appearance of the galvanic skin response. Although this finding invites a great deal of speculation with respect to the relationship between affective stimulation and organic rhythm and presumably should offer a new criterion of emotional response, it seems best to defer such discussion until our experiments have been carried further.

REFERENCES

- Landis, C., and Slight, D.: Studies of Emotional Reactions. VI. Cardiac Responses. *J. Genl. Psychol.*, 1929, 2, 413-420.
- Lewis, T.: The mechanism and graphic registration of the heart beat. (3rd edition.) London, Shaw, 1925, XIX+529.

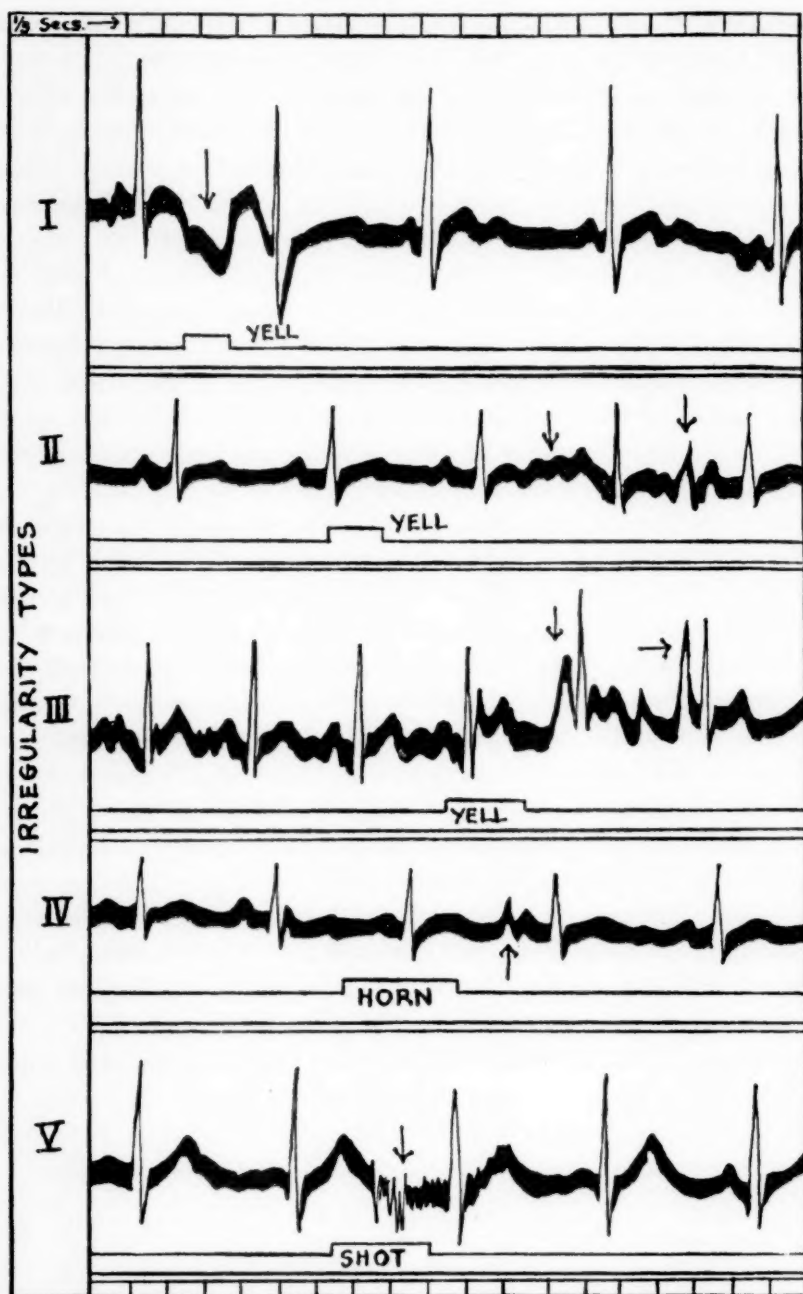


Fig. 1

Types of irregularities produced in the electrocardiogram by startle stimulation

Fig. 2

In this figure the relative percentage frequency of irregularities is shown on the same base with the Lead II electrical record from the heart. For Graph 1, 2 and 3 the figure is a graphic representation of the percentage frequency of "cardiogram" irregularities with respect to synchronization of stimuli with certain designated points in the electrocardiogram.

GRAPH 1

- Frequency for all cases, Series I-II-III, *before, during and after* adrenalin, all "cardiogram" irregularities.
- Same as above except certain Type V "cardiogram" irregularities which appeared to be possible artifacts were omitted.

GRAPH 2

- Frequency for all cases, Series I-II, *during* adrenalized state, all "cardiogram" irregularities.
- Same as above except certain Type V "cardiogram" irregularities which appeared to be possible artifacts were omitted.

GRAPH 3

- Frequency for all cases, Series I-II-III, *before and after* adrenalized state, all "cardiogram" irregularities.
- Same as above except certain Type V "cardiogram" irregularities which appeared to be possible artifacts were omitted.

GRAPH 4

Graphic representation of percentage frequency of increase or decrease of more than 10 per cent in pulse rate for first 5 heart beats after stimulation with respect to synchronization of stimuli with certain designated points in the electrocardiogram.

- Frequency for all cases, Series I-II-III, *before and after* adrenalized states.
- Frequency for all cases, Series I-II, *during* adrenalized state.

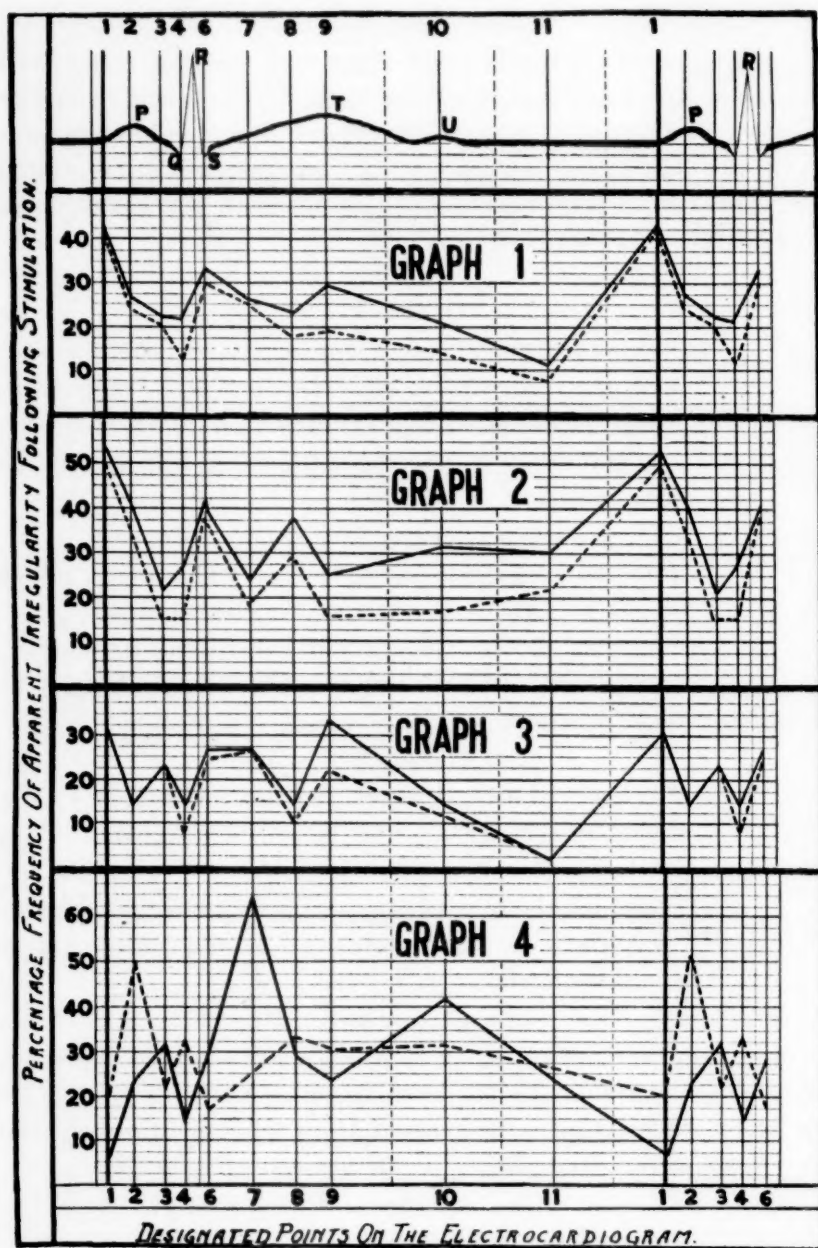


Fig. 2

PSYCHOGENIC AND CONSTITUTIONAL FACTORS IN HOMOSEXUALITY; THEIR RELATION TO PERSONALITY DISORDERS*

BY GEORGE W. HENRY, M. D.

It should not be necessary to remark that the division of any group of human beings into those who are heterosexually adapted and those who are chiefly homosexual in their interests is somewhat arbitrary. Phylogenetically and embryologically it seems that we have evolved from a state of hermaphroditism and it would be unlikely if not impossible that any individual would lose all traces of bisexuality however mature he became. A predominance of maleness or femaleness, according to the sex, is all that may be expected in those who are heterosexually adjusted. In many individuals it seems that the sexual balance is so delicate that unfortunate sexual traumata occurring early in life, or the many obstacles in the pathway to sexual maturity may determine a homosexual development.**

The problem of the extent to which there may be constitutional and physiological predisposition to heterosexual or homosexual adaptation will probably always give rise to much speculation. In this particular study the basis for the selection of the two groups was the psychosexual development of each patient as noted in the clinical history and in the records of interviews with the patient.

When the actual performance of these groups is compared the differences are rather striking. All of the heterosexual patients were married and reproduced. None of them had been divorced and there were no extra-marital relationships. The male heterosexual patients were the fathers of from one to four children and the female heterosexual patients had given birth to from one to seven children.

In contrast to this none of the homosexual male patients had children and only 3 of the 17 had married. Two of these three were divorced and the third was separated. Of the 16 homosexual female patients 5 had married but 2 of these were divorced and 1

*Read at the meeting of the New York Psychiatric Society on May 3, 1933.

**In this study an individual was regarded as being homosexual when there was evidence of pleasure derived from repeated homosexual relationships. Such an individual also failed to make an adequate heterosexual adaptation and in illness manifested either overt homosexual desires or compensatory strivings against them.

marriage was annulled. Only 4 of this group had reproduced and none of them had more than one child.

A more searching inquiry into the relationship of the psychosexual development to unusual childhood attachments or aversions and to sexual experiences seems to add to the understanding of the general observations already stated. Such an inquiry inevitably leads to a most detailed study of individual cases but it is still possible to note general tendencies. The clinical notations to be given were obtained entirely from the records of homosexual patients because the heterosexual patients presented no such material.

Any intimate emotional relationship during childhood with a member of the family is prone to strongly influence the psychosexual development of the individual. More often this relationship involves the parents. Its effects are observable whether the reaction is one of affection, fear or antagonism.

Unusual affectionate relations and experiences tend to be perpetuated and reappear later in life with substituted persons, in dreams, in fantasies or in psychotic reconstructions. The deep affection of a devoted son for his mother, who was described as being "full of vitality," may have been a determining factor in the sexual relations of this son with the father's secretary, an older married woman. This was followed by a profound sense of guilt and an attempt at suicide on the father's birthday. In his psychosis he referred to himself as a "weak sister." This in turn may have been an identification with the father who described himself as being "a regular old woman." This patient sought passive felatio relations with male nurses.

A childhood characterized by fear of the father and an older brother and by peeping on female members of the family probably was related to the subsequent psychosexual events in another patient. He was boxed on the ear at the age of four by his father for not knowing the catechism. He was teased and bullied by his brother who also frightened him by dressing up as a ghost. He was in constant fear of punishment for peeping which he continued at least until puberty. In addition to homosexual love affairs he was seduced by a series of sophisticated women, most of whom were married. Finally, shortly before his psychosis a divorced

woman with four children induced him to marry her. They all had to be supported by his family. In his psychosis he was fearful that he would be attacked by the male nurses.

Antagonism toward and fear of the father along with an attachment to the mother in the childhood of a third patient was followed in adult life by passive fellatio desires and an inability to make a heterosexual adjustment. During the acute stages of his illness the patient made several attacks upon women in order to try to overcome his homosexual tendencies. One of these attacks was upon an older sister who resembled his mother and to whom in fantasy he was married. He also said, "I am so much attached to my mother I am fighting my father all of the time . . . it's the father prohibition that keeps me away from women . . . The strongest sexual combination is with my mother . . . having my feet in her mouth and my penis in her vagina." His most difficult task was to get the woman in him to overcome the father in him and he added, "When you have both of them you are a child." He gradually gave up the struggle as futile, accepted the role of being a child, wore white garments and asked to be circumcised as a symbol of purification.

There is abundant evidence that the particular variety of sexuality experienced in childhood determines the preference of later years. The conflict that arises therefrom may be terrific and may result in most vigorous denials, in distortion and projection of the libidinous interests or in acts of violence. One patient formed a morbid attachment for another boy at the age of 5 and continued this until 15 when the other boy left him. At 21 in his first heterosexual experience he expected to find a protruding genital canal. In commenting upon the experience he said, "I went right for her breasts—kissed them—took the nipple in my mouth—I felt just like a baby . . . afterward I felt disgusted." A second attempt two years later was less successful and the girl suggested that he get a "fairy." In his psychosis he felt that people regarded him as a homosexual and that they could tell this by the changes in his lips and face. He said he would rather die than be considered a homosexual.

Another patient at the age of 12 was the victim of anal relations

with his father and with an older brother. In his psychosis he believed that in his sleep his brother and another man committed sodomy upon him. He said that his father always had an odor about his genitals as a result of these perverse practices.

The inability in later life to acknowledge the perverse tendencies of childhood is illustrated by a patient who was regarded as a "model child" but who at the age of 10 had fellatio relations with another boy. In his psychosis he said that people put out their tongues at him indicating thereby that he was a c. s. Phrases of this kind kept coming to his mind and voices called him a c. s.

More careful study of the patient shows that the psychosexual history is usually much more complicated than is indicated by the illustrations thus far given. Childhood experiences may not be the only determinants of libidinous preferences. One of the homosexual patients had masturbated with other boys throughout childhood and his adult homosexual relations also consisted of mutual masturbation. At the age of 11 his mother described heterosexual intercourse to him as being disgusting and it was not until he was 20 years old that he was aware of heterosexual desires. At that time he happened to see the exposed buttocks of an aunt and had a desire for anal relations with her. Four years later he was pursued by a married woman who obtained a divorce in order to marry him. He retreated in vain. On their honeymoon he tried to choke her and then said he would like to have sexual relations with her. He wanted her to have intercourse with dogs. He began to use cannabis indica and put cheyenne pepper on the glans. He wished his penis was larger and put pieces of rubber around it to make it fit tighter. Within a few months his chief desire was for anal relations. He pressed his genitals against the buttocks of women in elevators and embarrassed his wife by demanding anal relations from one of her female friends, old enough to be his mother. His wife then obtained a divorce. In his psychosis he went about exposing his genitals to men. He said that a certain married woman was to be his wife, his mother and his sweetheart and that she was going to treat him like a three-year-old child.

It is somewhat more difficult to establish life patterns among the female homosexuals. In general their libidinous preferences are

less obvious and the attachments between females are less conspicuous.

Either passivity or devotion to the mother was observed in two-thirds of the group. Some of the members of this group wished they were boys and they readily established "crushes" on girls in school. Passivity and the tendency to be unusually affectionate toward the mother seemed to continue. There was conspicuous failure to adjust after the mother died or when confronted with any situation in which heterosexual adaptation was required. While psychotic they either felt attracted to women and made homosexual advances or they felt that other women were doing something to arouse them sexually.

These tendencies may be illustrated by the two following cases. One was a precocious, timid child who was attached to her mother and always wished she had been a boy. She had had crushes on girls of the feminine type toward whom she used to play a masculine role. In her psychosis she had a violent attachment to another patient, got in bed with her and wrote ecstatic love verses to her.

The other patient illustrating these tendencies was shy with women before puberty but had a crush on a female professor in college. She talked a good deal about homosexuality and represented that she despised it although one of her close friends was obviously homosexually inclined. In her psychosis she protested that the homosexual advances of another woman were obnoxious to her. It seemed that the patient obtained the most satisfaction from masturbation, which she had begun at the age of three, and through sexual relations with a man old enough to be her father.

The combination in a female homosexual of devotion to the father and hatred of the mother is likely to give rise to violent emotional reactions to either sex. One patient of this type lived with her husband only five weeks, was aggressive toward him and then contemplated murdering him. In a psychosis 10 years later she said she was a man. She was unusually aggressive toward the nurses and without apparent provocation nearly killed another patient old enough to be her mother.

A patient who was devoted to her father and despised her mother married a widower at the age of 22. She did this in rebellion

against her mother who had called her a loose woman. After marriage she was frigid. In her psychosis 13 years later and after a period of using drugs and drinking to excess, she accused her husband of being a homosexual. She said that she had fooled him about her sexual desires and that she herself was a congenital Lesbian.

An unpleasant homosexual assault in childhood may be related to an aggressive, vindictive attitude. A patient who at the age of four had had her rectum stuffed with paper by another girl is recorded as having thrashed a boy who teased her several years later. In her psychosis she thought she had killed her mother and feared she would kill the nurse.

Whatever the relation of these sexual experiences may be it is reasonably clear that sexual traumata in childhood leave a lasting impression. A timid, self-depreciative woman reared in a home dominated by women was in childhood much under the influence of her brother. They indulged in mutual exposure and attempted intercourse. Before the age of 10 a man had exposed himself to her and she had peeked at her father. At the age of 20 there was a short period of infatuation with a friend of her brother which she terminated because the idea of intercourse seemed terrible. In her psychosis she had fantasies of male and female genitalia and of auto-fellatio—the genitals appeared unattached and were related vaguely to the man who had exposed himself to her in childhood. She had fantasies of her father assaulting children. She wished to have sexual relations with her brother and was afraid to have him visit her. She had fantasies of his penis getting longer and longer and going into her. She wished he were dead so that he would not be around to bother her any more.

Another patient was the favorite of a sexually promiscuous and miserly father. At the age of six she was informed by her grandmother that the father might use her sexually and that he was a beast. She was also warned that she would go crazy if she abused herself. Two years later she was sent by her mother to spy upon her father while he was having an affair with the woman next door. After she had witnessed the scene her mother explained to her that they were practicing fellatio. When the patient was 17 the father

remarried but she could not tolerate another woman in her mother's place and wanted to die. For several years she had promiscuous heterosexual relationships but with satisfaction from masturbation only. In her psychosis 10 years later she had strong impulses to perform fellatio on an effeminate man to whom she later became engaged.

Undoubtedly homosexual interests often are important factors in the choice of a career. This was observed in a male homosexual who was indifferent to girls and who began masturbation at the age of six. At puberty a camp counsellor introduced him to mutual masturbation and homosexual interests were continued with an instructor in a private school. In this school he was told that sexual desires must be subdued by vigorous exercise. Later he became very popular with boys through his unusual athletic ability.

His illness was precipitated by the engagement of a girl, a distant cousin, to one of his friends. He had not previously shown any interest in this cousin but then declared he was deeply in love with her. He had been working in a bank simply to please his mother but he really wanted to teach in a boys' school and coach athletics. He acted as an usher at this cousin's wedding but was disgusted by the drinking after the ceremony. He would not take a drink himself because he was afraid he would disclose his real feelings if he became intoxicated. Within a few weeks he became very religious and wanted to become a priest. He asked for a pistol and when this was refused he started to run to a nearby monastery. In the hospital he prayed constantly for God's help against the devil and said he must atone for his sins before he could enter the priesthood. He became very much attached to a male nurse, wished to be of service to others and said he would like to be an attendant in this hospital.

When the conflict over homosexuality leads to a psychosis the patient often feels that there is no solution for his problems, becomes desperate and may be driven to acts of violence. The aggressive activity is often directed towards others but it may at the same time be self-destructive. This may be illustrated by the history of a 29-year-old catatonic male whose mother was psychotic and whose father was rather excitable but devoted to him. He was a docile

child who before puberty was afraid of his father and thereafter was fond of him. During adolescence the patient lived in a priest's family. He idealized women and although homosexuality was abhorrent to him he was tolerant of those so inclined. His first heterosexual experience at 17 was unsatisfactory and a few years later he sought and was given treatment for syphilis although he had not been infected. At the age of 25 he began a serious love affair with a married woman 15 years his senior and at about the same time he was circumcized. Four years later he was obsessed with the idea that he had contaminated others with syphilis and that for this he would probably be electrocuted. When voices reminded him of a homosexual practices he would say, "Oh! Shut up—I never did such a thing—just a little at the start." He became aggressive and resistive. He thought his father was against him, that the physician was going to take out his eyes and that he was going to be killed. He called the male nurses murderers and thieves and attacked them whenever they entered his room. On the other hand he asked to be put into packs, to be fed by tube and he made desperate self-destructive dives onto the floor and against the wall.

Uncontrollable self-destructive tendencies associated with a profound sense of guilt and feelings of utter hopelessness and desperation may be observed for weeks and months before the final act is committed. This combination may be illustrated by the histories of two female homosexuals. One of them was the only child of a worrisome, psychotic father and of a nervous, sleepless and devoted mother. As a child the patient did not care to associate with other children and she was watched with unusual care by the mother because of supposed heart trouble. At the age of six she was taught masturbation by a female cousin. During adolescence she preferred the company of girls who were of the intellectual type like herself and this preference caused boys to shun her. Although her mother was her constant companion sex topics were never discussed.

Her first heterosexual interests appeared when she was 27 and during the next five years she indulged in perverted sexual practices with a man whom she expected to marry. Marriage was postponed in order to please the mother and because neither wished to

be separated. The patient said that even if she did marry she wanted to continue to live with her mother. At 31 a strong, athletic girl of 19 won her affections. At first the patient represented that she was trying to keep this girl from being sexually promiscuous. Sometimes homosexual relations occurred several times a day and through these experiences the patient began to obtain sexual gratification. This had not been achieved in her heterosexual relations. The man and the girl were jealous of each other and the patient felt guilty because she was not being fair with her fiancé. Within a year she became self-accusative and hypochondriacal. She confessed to her mother that she had been "wicked" and was no longer her "darling child." She felt that the nurses were plotting against her and delighted in making her suffer. They knew all about her homosexual relations and inferred she was having such relations with other patients. They had spread a rumor that she was going to have a baby (No interest in having a child had been manifested previously). She insisted that she could never get well, that her bowels never moved and that she was all stuffed up. She begged insistently to be allowed to go home to her mother. Finally she was removed by her mother against advice and three days later in her home she committed suicide with gas.

The second patient was the youngest child and only daughter of an indulgent father. He had had an affair in his 74th year. Her nervous repressed mother had instilled prudish ideas and kept the patient ignorant of sexual matters. She had been a robust, tomboyish girl and was described by her brother as having been unafraid of "God, man or the devil." At the age of 10 a man showed her a picture of a nude female statue. She ran away from him, told her mother and thereafter feared she would grow up to be like the statue, with no genital opening. At 13 she was much upset when her brother tried to introduce her to masturbatory activities. While attending dramatic school at 18 she started out with a road company but soon deserted because of nostalgia and her mother's solicitude. Two years later she started a business course but after two months again returned to her mother. For a short time she accepted the attentions of a young man who later told her brother that she was as "cold as a fish."

She became psychotic at the age of 34 after a benign cyst had been removed from her vulva. Her mother had died five years prior to this and because the patient refused to do any housework she and her father went to live with a married brother. She spent much of her time smoking and in discussing ultra-modern views of sex with sophisticated spinsters. She also participated in the quarrels with her brother's wife.

About four months after the operation on her vulva she became excited, said the doctor had aroused her sexually and that he had robbed her of her sex. She was greatly upset when this physician mentioned the possibility of an early menopause. She walked about the house nude and frequently said: "I have to know the truth—is it too late?—Is there something wrong with me?" While still under the influence of an overdose of allonal which she had taken with suicidal intent she said: "I am still in the dark as to sex—there are two sides to me—my male side and my female side. I must have relations with a man and a woman—must have sexual experience—I must have a full term baby. Sex has been hidden from me." She also said that she was afraid to die lest she meet her mother.

She exposed herself to her brother, indulged in autoerotic practices with him, entered a neighbor's home and offered herself to two men there. She pursued a 16-year-old neighbor lad with such zeal that for two weeks he was afraid to leave his home. She also attacked a colored maid and had homosexual relations with her father's nurse. On the day before admission to the hospital it was a problem to keep her from assaulting men sexually and she did attack her brother's wife and the nurse.

After admission she again stated, "There are two sides to me—a female and a masculine side—it is too late—things could have been made all right for me years ago." Voices told her that it was too late and they also told her to assault nurses and develop her masculine side. She requested the physician to perform an operation upon her to hasten the growth of hair and the development of a penis so that she would become a man. She also said that a woman physician had tried to take away her masculine side. She made vicious assaults upon the nurses, trying to kiss them and at the

same time pulling their hair, clawing them and attempting to bite them. On one occasion she got out of the prolonged bath and tried to drown the nurse. In these assaults she would make rhythmic movements of her body strongly suggesting the masculine role and sexual approach. She said it was too late to have sexual relations with men, and: "I am going to live with women—the male sexual organs are slowly developing—I will soon be a whole man—Doctor E., who performed the operation (removal of cyst from vulva)—started the male side to develop and I will use it—I am dried up from a female standpoint but I will become a man of the most rotten type." She admitted that since the early part of her illness voices had commanded her to assault people and had continually said to her, "It is too late for you, now." She was transferred to a State hospital and four days later hanged herself.

If we could be sure that the heterosexually adjusted patients had not been exposed to sexual traumata in childhood it might then be possible to conclude that homosexuality is psychogenically determined. It is probable, however, that the heterosexual patients also had to deal with psychosexual problems early in life. Even if these problems were conspicuously less acute than those of the homosexual group the question still arises as to why the heterosexual individual appears to have been unaffected by sexual traumata while in the psychosexual history of the homosexual there is the sequence of events already related. It seems that there must be other factors which contribute to the differences in psychosexual development.

Even the layman is aware of constitutional differences in human beings and it seemed worth while to try to determine what physical traits might be associated with psychosexual development. By paying special attention to the stage of development of the primary and secondary sex characteristics in the patients studied we might be able to arrive at some estimate of the constitutional differences and of the degree of sexual development at a physiological level. There might then be evidence of greater susceptibility to psychosexual traumata, especially on the part of individuals who manifest homosexual preferences. In any case the results of such a

study* made upon the group of patients included in this investigation are particularly illuminating.

The combination of constitutional and psychogenic factors is well illustrated in a homosexual male, 37 years old. There were several members of his family showing endocrinopathies. The mother was neurotic and had a depression. Nevertheless she took care of the family finances as the father had no business sense. A younger brother was also neurotic.

At birth the patient weighed only five pounds and during early childhood his health was impaired by severe illnesses. He was described as a sweet, submissive and agreeable child who attended religious services regularly. He was, however, very sadistic toward his younger brother. He used to promise to give this brother a ride in return for being allowed to pinch him or to jump up and down upon him. They never have got along well together.

When he was six years old he asked his mother about the mechanism of reproduction but he was not enlightened by her explanation. At that age he experienced sexual pleasure by climbing up a pole. At 10 he began solitary masturbation, a practice which he has continued. He also enjoyed watching an older boy exhibit his genitals. Mutual masturbation begun with another boy was continued until the patient's marriage.

Although he was intellectually precocious he did only average work at school. He deliberately made mistakes so that he would be punished. He envied another boy who was frequently whipped. Although his mother spanked him, she would not allow him to be spanked at school with the result that he had to write sentences instead.

When he was 12 years old he was surprised on seeing his father's genitals to find that his father was actually not a sexless person. The patient has always worried about his own small penis and envied the large penis of the friend with whom he had mutual masturbatory experiences. He also felt inferior because of his small stature (5' 2 $\frac{1}{4}$ ") and was jealous of his younger brother whose body as well as his penis was larger.

*I am indebted to Dr. Hugh M. Galbraith for his assistance in making the physical examinations of these patients. A more detailed account of the constitutional aspects of this study is being published in *The American Journal of Psychiatry*.

At the age of 13 he discovered the facts about reproduction while studying physiology. He was disgusted at the thought of sexual contact between his parents. Two years later he fell in love with a girl of 12 but there was no other heterosexual interest of this kind until he was nearly 30.

In college he studied dentistry for two years but then gave it up because the microscope hurt his eyes. As he was able to do any amount of reading at this time it is probable that in discontinuing the study of dentistry he avoided comparison with his father who was a successful dentist.

After being a professor of German for several years, until this language could no longer be taught because of the feeling during the war he sought a Ph. D. degree in French. At the time of the examinations he suffered from insomnia, had a sense of impending disaster, feared his heart would stop beating and was troubled with nausea, vertigo and with numbness of his left arm.

He was then 33 years of age and had been married two years. He had become very anxious to marry and after being refused by two girls he married a woman four years his senior who had been practically reared by his own mother. Although he had known his wife for 20 years he had seen her only once in the 10 years prior to the wedding. Their courtship was by correspondence. She was of the same physical build, a somewhat masculine type of woman and she was found to have an infantile uterus. She was also suspected of being a homosexual. Both were anxious to have children but conception did not take place. The patient had his semen tested and was found to have plenty of spermatozoa. In vain his wife had four gynecological operations on his insistence and during this time intercourse was impossible. His physician advised relations with prostitutes but he always suffered from *ejaculatio præcox*.

After marriage and until a year before he became psychotic he had lived opposite his mother's home and had visited with her daily. He then persuaded his wife to purchase a very expensive house so that his home would be as good as his father's. He spent all of his salary on the mortgage and was dependent upon his wife for other expenses. This worried him as did also the fact that he saw his mother only occasionally.

At this time they adopted a German boy and thereafter in spanking him the patient experienced sexual pleasure. He made plans to go to Germany provided that he could get a position there. His wife would be happier in Europe but his mother violently opposed the plan as she did not wish to be separated from him.

Three days after his salary was reduced and he was told that he could remain at college only as a lecturer, he attended a spiritualistic seance. This occurred at the home of the man with whom he had had homosexual relations. (He had recently had a mutual masturbatory experience with this man.) A message from the spirit world stated that his wife should go to Europe alone. He did not seem to have any reservations regarding messages received and insisted that his wife do as the spirits ordered. He also followed the directions of the spirits to have homosexual relations with his friend and to masturbate every other day. He saw Jesus, thought he was His son and believed that he had been divinely appointed to improve the world and to make everyone anxious to live according to the Golden Rule.

In addition to his diminutive stature this patient had small bones, marked hyperextensibility of the joints, a "peaches and cream" complexion, deficient hair on the chest and abdomen, excess fat in the breasts, on the abdomen and about the hips, a very high-pitched voice, very small and soft testicles and a very small penis descending from a well marked scrotal fold. The consulting internist referred to the patient as having a remarkably feminine face, voice, manner and behavior as well as an immature appearance.

Equivalent physical anomalies were observed in the other cases cited but it may be more informative to summarize briefly the findings obtained from a study of the whole group. Observations on the constitutional makeup were made on 228 patients but this paper includes also a detailed investigation of the psychosexual histories of 22 additional patients. All of them had daily interviews over a period of at least three months and in a large proportion of the cases for more than a year.

Out of the total group special physical examinations were made without selection of cases upon 123 male and 105 female patients, regardless of the nature or stage of the illness and before their

psychosexual histories were studied. Note was made of those constitutional and physical characteristics which are usually associated with maleness and femaleness. Some of these notations were of precise measurements but most of them were dependent upon direct impressionistic observations.

After these observations had been made the psychosexual history of each patient was obtained from the clinical records. No patient was included in this study who had not been in the hospital at least three months. Information regarding sexual experiences and preferences was obtained from the formal history, the personality study and the records of clinical investigations. These records were made by the various members of the staff of the hospital and independently of this study.

From the data thus obtained it was discovered that 33 patients had conspicuous homosexual experiences and preferences. This group was selected for special study and for comparison with a group of 15 patients whose heterosexual adaptation was reasonably satisfactory. It was of course necessary to subdivide these groups according to sex before any comparative study could be made.

In order to arrive at a general estimate of the physical characteristics of the different groups somewhat arbitrary values were assigned to the notations in each case. Male characteristics included heavy bones, a carrying angle greater than about 170 degrees, a minimum amount of firm adipose tissue, large and firm muscles, coarse hair on face, chest and extremities and a masculine distribution of pubic hair, low-pitched voice, the usual male genitalia and absence of scrotal fold. Among the female characteristics were light bones, a carrying angle less than about 170 degrees, the usual adipose tissue found in the female breasts, shoulders, girdle and buttocks, small and soft muscles, absence of or not more than a slight amount of fine hair on the face, chest and extremities, the usual feminine distribution of pubic hair, high-pitched and soft voice, and the usual adult female genitalia.

It was found that many of the homosexual males have a feminine carrying angle of the arm, large muscles, deficient hair on the face, chest and back, a high-pitched voice, small penis and testicles and the presence of a scrotal fold. Not uncommonly they have soft fat

in greater amount in the shoulders, abdomen and buttocks. Some have an unusually large penis.

In like manner the female homosexual patients are characterized by firm adipose tissue, deficient fat in the shoulders and abdomen, firm muscles, excess hair on the chest, back and lower extremities, a tendency to masculine distribution of pubic hair, a small uterus, either over or under-development of the breasts, fine hair, excess hair on face and a low-pitched voice.

One of the more common associations with masculinity and femininity is the relative width of the shoulders and hips. The heterosexual male ratios were equally distributed and slightly above or below the average for the whole group while the homosexual male ratios deviated farther from the average. Sixteen out of the 17 homosexuals had broader shoulders* with respect to the pelvic diameter than the average for the whole group of male patients. The same is true of the ratios in the heterosexual and homosexual female patients except that the deviation of the homosexual ratios from the average is less than was found with the homosexual males and also the homosexual female ratios are evenly distributed above and below the average ratio for all of the females.

A greater tendency to deviate from the average torso-leg ratio was observed in the homosexual males. There seems to be a distinct tendency to long legs with respect to the length of the trunk. On the other hand the torso-leg ratio of heterosexual females deviates farther than the ratio of homosexual females from the general average female ratio. This greater deviation was due to a tendency to a longer trunk with respect to the length of the legs in heterosexual females. Nevertheless in both sexes the homosexuals tend to have longer legs with respect to the trunk length.

From the measurements of the external conjugates of 123 male patients the average was found to be 18.2 cm. while the average external conjugate of 103 female patients was 17.3 cm. In comparing the measurements of the two groups of patients the homosexual male external conjugate proved to be slightly longer. The difference in the external conjugate measurements of the two groups of

*A study of the actual measurements shows that the average biacromial diameter is the same for both the heterosexual and the homosexual males but the interspinal diameter of the heterosexual male averages about 2 cm. longer than that of the homosexual male.

female patients was much more marked. The average heterosexual external conjugate was 19.2 cm. while that of the homosexual was only 17.6 cm. In other words, in about one-half of these patients the conjugate vera was probably shortened and with about one-third of them serious interference with normal delivery might be expected because of pelvic contraction.

In regard to the results obtained from the skeletal measurements it is not surprising that the homosexual male has relatively narrow hips and that the boyish form is thus preserved. The tendency to relatively long legs in the homosexual male may be another indication of delayed gonadal development with compensatory pituitary activity. These characteristics together with a feminine carrying angle suggest that structurally the homosexual male has remained nearer the species type rather than progressing to the highly differentiated adult masculine form. Skeletal immaturity in the female homosexuals is most evident in the high percentage of contracted pelvises.

In the absence of precise standards for comparison the notation of fat deposition in amount and distribution is entirely impressionistic. Although women are usually fatter than men, the race, heritage and habits of life of the individual are important factors in determining the relation of fat to body contour. Fat deposition is of course dependent upon the function of various ductless glands and both sexes tend to become obese after the period of sexual involution.

None of the patients included in this study had any gross endocrine dysfunction and none were pathologically obese or emaciated. A few had passed the period of sexual involution without presenting obvious corpulency.

Accurate estimations of the musculature were likewise difficult but the observations nevertheless tend to show that the homosexual more closely approximates a species type than the heterosexual. The male homosexual may have larger muscles but he also has excess fat and feminine contours. The female homosexual is often deficient in fat, has small and firm muscles and therefore tends to have more angular and masculine contours.

Although there were no obvious endocrine anomalies in the pa-

tients included in this study there were marked differences in the growth of hair. Homosexual males tended to have a deficient growth of hair while the homosexual females were prone to have an excess growth of hair on the face, around the nipples, on the abdomen and the extremities. With regard to the growth of hair, therefore, it may be said that there was much more suggestion of arrested sexual development than was found in the heterosexual patients.

In general, it appears that the homosexual patient tends to have a dysplastic constitution and an arrested sexual development at the physiological level of integration. We may never be able to progress very far beyond speculation in evaluating constitutional and environmental influences contributing to homosexuality but it is obviously necessary to study carefully both aspects of the problem in dealing with any given case.

Assuming that there are constitutional differences, such as have been mentioned, between homosexual and heterosexual individuals, it is not surprising that their psychosexual behavior should also be different. Insofar as the information gained in this study may indicate the general tendency among individuals with personality disorders, a homosexual adjustment among male patients is more than three times as common as a reasonably adequate heterosexual development. Among the female patients a heterosexual adaptation seems to be less difficult as the excess of homosexual over heterosexual individuals is only 50 per cent.

Among the 16 female homosexuals there were only 8 who had had heterosexual relations. None of these made a satisfactory heterosexual adjustment although 7 of them had been sexually promiscuous. Six of them had masturbated in childhood, continued to obtain sexual gratification through masturbation only and were frigid in their heterosexual relations. One of them left her husband five weeks after marriage and then contemplated murdering him. There was one other homosexual who manifested her heterosexual interest by striking her lover on the eve of their marriage and by urinating in his lap after the ceremony was performed. It is probably superfluous to remark that they never lived together and that marriage was annulled.

When the psychosexual histories of the female homosexuals are compared with those of the female heterosexuals the contrast is astonishing. No member of the heterosexual group has a record of sexual traumata in childhood and there is no history of masturbation before puberty. It is improbable that the members of this group did not have sexual experiences in childhood but whatever these experiences may have been they seem to have made little impression on the patients or the families.

All of the individuals in the heterosexual group married before the age of 25, made a satisfactory heterosexual adjustment and had from one to seven children. Four of them became psychotic within a year after their husbands died and a fifth patient developed a psychosis after her husband became impotent.

Even the psychotic productions of this group bear little resemblance to those of the female homosexual group. The heterosexual psychotic woman usually develops a profound sense of guilt for having indulged in any form of sexuality other than normal heterosexual relations with the husband. One depressed patient felt at times that her dead husband was calling her to join him. Another depressed patient dreamed about being with her husband and that he was affectionate to her. (He had actually been alcoholic and brutal to her and insisted upon fellatio relations. A year before the onset of her illness he was killed while he was drunk.) She also said: "He is in my thoughts all the time—that's why I dream about him." None of the heterosexual group had paranoid tendencies.

On the other hand, the psychotic female homosexuals seldom manifested any interest in the opposite sex and they were occupied with homosexuality or incest relationships. Most of them expressed a feeling of attraction for their own sex, some made homosexual advances and others accused nurses or patients of doing something to arouse them sexually. One-fourth of them made violent homosexual attacks and practically all of them expressed paranoid trends.

An equally sharp contrast is observed when a comparison is made of the heterosexual and homosexual male groups. Two-thirds of the male homosexual patients had sexual traumata in childhood

and the libidinous preferences thus established usually continued throughout life. All but two of the homosexual males attempted heterosexual relations but none of them succeeded in making a heterosexual adjustment. Failures were due to impotence, *ejaculatio præcox* or to preference for homosexual or other perverse sexual relationships. A few were actively promiscuous for a short time but usually while partially intoxicated. Some of the heterosexual experiences either were purely platonic or the sexual relations were incomplete. Some were repeatedly seduced by sophisticated women but they soon became inadequate if the heterosexual relations were continued. Not uncommonly heterosexual relations were attended by a feeling of disgust and one of the patients vomited whenever he attempted heterosexual relations.

In the psychotic state all of the male homosexuals manifested their homosexual trends in one way or another. About a third of them made active homosexual advances. As many declared that other people were making them homosexual or were using them for homosexual purposes. A few either feared castration or asked to be castrated. About one-third of them made violent attacks on other males and some of these patients also made desperate attempts to kill themselves, usually by diving head first on the floor or against the wall.

The heterosexual males were throughout life consistently different than the homosexuals. There is no record of sexual traumata in childhood, no violent emotional reactions to parents, and none of them had any apparent difficulty with heterosexual relations. None of them are recorded as having had extra-marital relationships. One of them became alcoholic after his homosexual wife refused to take care of their only child. He threatened to kill her when he found that she was unfaithful. The other heterosexual males were depressed when they became mentally ill and some of them were occupied with thoughts of having ruined their families. There were no suggestions of homosexual interests.

When the psychosexual preferences of the individuals included in this study were correlated with their official diagnoses it was found that in the heterosexual group there were 4 patients suffering from involution melancholia, 6 with manic-depressive depression, 2 with

agitated depression and 1 with alcoholism. The homosexual group, on the other hand, was composed of 3 manic-depressive, 5 psychoneurotic, 7 psychopathic, 1 paranoic and 17 schizophrenic patients.

In general, it may be said that the psychotic reactions of the whole homosexual group tended to be paranoid and schizophrenic in nature while the heterosexual patients were occupied with feelings of depression and unpleasant sensations associated with bodily processes. They expressed ideas of unworthiness and self-condemnation. None of the heterosexual group manifested paranoid trends. During the periods of life when the heterosexual is not psychotic he is a fairly well-adjusted individual. At least 25 per cent of the homosexuals were psychopathic prior to the onset of mental illness.

It is probable that in this study we are dealing with a kind of homosexual individual, a kind in which the sexual cravings are intolerable and in which the conflict leads to schizophrenic disorganization of the personality. Heterosexual patients were uncommon probably because the psychotic has much less chance to make this adjustment than the average citizen. Civilization's most severe test seems to be imposed upon the heterosexual male.

SUMMARY AND CONCLUSIONS

On the basis of a study of 250 adult patients grouped according to the predominance of heterosexual or homosexual tendencies, the following general summary and conclusions seem justified:

1. The psychosexual histories in the heterosexual and homosexual groups are conspicuously different. All patients in the heterosexual group were married and had from one to seven children. None of them had been unfaithful after marriage and none of them had been separated or divorced. Only 25 per cent of the homosexual patients were married, none of them made a satisfactory heterosexual adjustment and three-fourths of the marriages were dissolved by separation, divorce or annulment. As a result of these marriages the total number of children born was only four. The 15 heterosexually adjusted patients, on the other hand, had a total of 38 children.

2. Prolonged, intense emotional reactions to parents, and sexual

traumata in childhood are rare in the heterosexually adjusted while these reactions and traumata are frequently noted in the early lives of homosexual individuals. In addition when personality disorders occur the heterosexuals tend to develop benign psychoses while the homosexuals are prone to have chronic paranoid and schizophrenic illnesses. It would seem therefore that any intrusion of adult sexuality in childhood is distinctly unhygienic. It may be an important factor in a perverse psychosexual development and it may be one of the causes of a chronic mental illness.

3. Although environmental influences often are conspicuously active these psychosexual differences are also dependent upon constitutional factors. Homosexual patients were found to have considerably greater constitutional deviations from the general average than those of the heterosexually adjusted.

4. The homosexual male is characterized by a feminine carrying angle of the arm, long legs, narrow hips, large muscles, deficient hair on the face, chest and back, feminine distribution of pubic hair, a high-pitched voice, small penis and testicles and the presence of a scrotal fold. Not uncommonly there is an excess of soft fat on the shoulders, buttocks and at the girdle. Occasionally the penis is very large and the hips are unusually wide.

5. The homosexual female is characterized by firm adipose tissue, deficient fat in the shoulders and at the girdle, firm muscles, excess hair on the chest, back and lower extremities, a tendency to masculine distribution of pubic hair, a small uterus and either over or under-development of the labia and clitoris. There is also a tendency toward a shorter trunk, a contracted pelvis, under-development of the breasts, excess hair on the face and a low-pitched voice.

6. In general it seems that the homosexual patient tends to have a dysplastic constitution and an arrested sexual development at the physiological level of integration. In addition to the incomplete development of other primary and secondary sex characters the reproductive capacities of pelvic structures remain under-developed. This is indicated by relatively narrow hips in the male (a boyish form) and a tendency to contracted pelvis in the female.

A REPORT OF SEVERAL CASES OF FOLIE A DEUX

BY W. ROBERTS WEBSTER, M. D., C. M.,
ASSISTANT PHYSICIAN, MARCY STATE HOSPITAL, MARCY, N. Y.

Although numerous case reports on folie à deux are to be found in a review of the literature, instances of its occurrence are sufficiently rare to justify the report of additional cases.

The term "folie à deux" has no exact English equivalent. Boyd¹ defined it in the following terms: "A mental disorder occurring in two or more predisposed individuals who have been intimately associated with each other. It is characterized by delusional ideas, particularly of a persecutory type, which may be transferred from one individual to another." Clark,² quoting Diefendorf's definition, defined it as "a broad term which has been applied to the occurrence of a mental disturbance in two or more individuals who have been intimately associated with each other."

Boyd, in 1912, reported a case, reviewed the literature briefly and included an extensive bibliography containing 73 references. He credited Baillarger with the first reference to the condition but said it was first accurately described by Lasèque and Falret in 1877. In 1922, Rhein³ reported two cases and gave a comprehensive resume of the literature. Boyd, quoting earlier writers, described four types as follows:

1. *Folie Imposée*. Lasèque and Falret stated that the delusional ideas of one person might be transferred to another person; the psychosis of the second individual tended to disappear when the two were separated.

2. *Folie Simultané*. This type was described in 1881 by Regis. The psychotic manifestations appear simultaneously in two or more individuals in close association and through reciprocal influence.

3. *Folie Communiquée*. This was first described by Marandon de Montyel in 1881. The second person develops psychotic symptoms after prolonged resistance to the delusional ideas and his psychosis persists even after separation from the primary individual.

4. *Folie Induite*. As originally described by Lehmann in 1883, this type consisted of the addition of new delusions to a psychosis

as a result of association with other patients. (By some writers, the term "induced insanity" is used as a synonym for folie à deux.)

Some writers believe that the division of folie à deux into different forms is unnecessary and confusing. Most of the writers agree that the primary case is usually the dominant personality and the induced case is likely to be a person who is abnormally submissive. It has been stated that a young person is more likely to accept the delusions of an older person than for the reverse to occur.

REPORT OF CASES

CASE 1. A. B., white female, single, aged 48. Diagnosis: Paranoia. The patient's family history was negative for mental and nervous diseases. She was the sixth child in a family of seven. During her childhood she lived on a farm. Her family had the necessities of life but few of the luxuries. Her mother died when she was 14 years old and following this there were several housekeepers for short periods but the children were brought up mostly under the father's guidance. He was a strict churchman and he exerted rigid discipline over his children. In school A. B. was quite bright and after completing the eighth grade she took a commercial course. Then she worked in a factory for two years. About that time she had an abdominal operation, the exact nature of which is unknown. The incision did not heal properly and a large ventral hernia resulted. This caused the patient considerable worry and discomfort for many years. Beginning in 1922, she made her home with a married sister, B. C.

As a child she was irritable and excitable and wanted her own way in everything. As a young woman she was industrious, thrifty, systematic and neat and was interested in singing, reading and sewing. For many years she was a devout member of her church but for a year preceding her admission to hospital she completely neglected going to church. She had no love affairs as she was not interested in men.

Her mental trouble began about June, 1932. She began to complain that her food had no taste and that it did not smell as it should. These ideas gradually became more pronounced. Then she said that the water in the well had been poisoned and someone had tampered with the food bought at the store. She believed that the relatives of her brother-in-law were to blame for these things and that they were attempting to get her sister and brother-in-law out of the way so they could get the home. She thought these relatives caused the neighbors to interfere with her and her sister.

The sister, B. C., after a time began to believe in these delusions. Both sisters would go out of the house and scold people whom they heard talking or laughing outside. When any of the children in the neighborhood played on the street, the sisters thought that the children threw dirt at them and that whenever they were struck by any pieces of dirt they were changed into animals; this affected their faces and voices and caused them to walk with peculiar gaits. On several occasions A. B. believed she had been changed into a tiger and she would go about the house growling and trying to walk as a tiger walks. The two sisters would stand for hours before a mirror telling one another how queer they looked. These events usually occurred when Mr. C. was away but he frequently returned to his home to find them imitating animals. A. B. would usually express a delusion first and her sister would agree with her. Mr. C. only caused them to become angry with him when he tried to reason with them.

The sisters consulted the local health officer about the food and water and they were very angry when he said that there was nothing wrong. Then they asked the State police to keep the people from trying to poison them. The police investigated and found that the only basis for the complaint was that some of the neighborhood children had been teasing the sisters. Finally the neighbors became fearful that their children might be harmed and therefore the sisters were brought to the hospital on June 15, 1933.

Here A. B. said that their vegetables had changed color and that they had seen poison in them. Their food and water was contaminated and poisoned and this affected their vision and made a film over their eyes and sometimes made them look like lions or monkeys. At first she was talkative and excited but she soon became agreeable and cooperative. She spent most of the time sitting in the company of her sister. She talked readily with the physicians and nurses and her conversation was quite coherent. She expressed very little resentment and little emotion as she talked of her troubles and she appeared to derive a quiet pleasure from the dramatization of her persecutory experiences. She said that there had been no poison in her food in the hospital and that she felt much better. Her only explanation for her difficulties was that there must have been a definite plot against them.

The sisters were separated after a short time. Early in August A. B. began to show improvement and to express some doubt as to the reality of her persecutions. This improvement continued until finally she stated that there was no real basis for her strange ideas. However she could give no adequate explanation for her delusions; she believed she had been overworked, nervous and upset. On September 24, 1933, she was discharged.

The only positive physical findings were a moderate hypertension (180-85) and a large ventral hernia. Urine, blood chemistry and blood Wassermann were negative.

CASE 2. B. C., white female, married, aged 46. Diagnosis: Paranoia, induced. This patient is a sister of Miss A. B. She was born in a rural community in New York State and was the youngest in a family of seven. Birth and early development were normal. She learned readily in school and took a commercial course after completing the eighth grade. When she was 12, her mother died and thenceforth she was brought up mostly under the supervision of her father. She was good-natured, even-tempered and sociable. She was very easily influenced by others, seemed unable to make her own decisions and would agree with anything rather than express her opinion in the face of opposition or disapproval. She was systematic, saving, neat and clean. On July 18, 1922, she married a farmer nine years her senior. Her sexual demands were small as she did not want any children and feared the possibility of pregnancy. The sister, A. B., went to live with them soon after the marriage. The two sisters were devoted to one another and the husband did not dare to cross them in any way.

About March, 1933, Mrs. B. C. began to accept the delusions of her sister who had been psychotic for about nine months and had been trying to force her ideas on B. C. At first the sisters had quarreled frequently when B. C. had tried to explain to her sister that she was imagining these things. Then the quarrels became less frequent as the married sister accepted the paranoid ideas. B. C. began to quarrel with the neighbors as she believed that the neighbors' children threw dirt at them and changed them into animals. On one occasion she said she had been changed into a duck and that it was several hours before she could get her face back to its normal shape. At another time, she thought she was changed into a rabbit and for a day she hopped about the house doing her work. Once Mr. C. arrived home and found the two sisters behaving peculiarly and claiming that they had been changed into a tiger and a monkey. When he reasoned with them, they became very angry. The married sister said that the food had no taste and that the milk was colored pink. She was admitted to the State hospital at the same time as A. B.

At the time of admission she was excited, talked loudly and cried but soon became agreeable and cooperative. She spent most of her time with her sister until the latter was transferred to another ward. Within a very short time her delusions began to fade. She admitted the possibility that things might be different from what they had thought. She expressed no resentment when talking of the plot against them. She had no persecutory

experiences after entering the hospital. She improved very rapidly and soon admitted that she had had a mental disorder. On August 27, 1933, she was discharged as recovered.

Physical examination was essentially negative. Blood chemistry, blood Wassermann and urine were negative.

In March, 1934, they were visited by a social worker from the hospital and it was found that both patients had made excellent adjustments. B. C. has been living with her husband and has been doing the housework. A. B. has been working as nurse and housekeeper for an elderly lady. She lives at her employer's home but visits B. C. once or twice each week. Mr. C. gave a favorable report on both patients and the worker was unable to discern any evidence of psychosis in either case.

COMMENT

These two cases seem to meet all the requirements for a diagnosis of folie à deux. A. B. is a dominant personality while her sister, B. C., is abnormally submissive and is influenced by suggestion to an exceptional degree. The unmarried sister developed a psychosis first and succeeded after considerable opposition in imposing her psychotic ideas on her married sister. It is unlikely that B. C. would have had a psychosis had she not been in close contact with A. B. The delusions of each patient were enhanced by the other patient and, during their hospital residence, it was impossible to say which patient developed any particularly delusion first. It should be stated that many of the psychotic ideas may have been illusions rather than delusions as there may have been some actual happening preceding the appearance of any particular psychotic idea. For example, there is no doubt that the sisters were actually teased by the children in the neighborhood.

B. C.'s psychosis appears to be one of the first group mentioned by Boyd, that is folie imposée. The prolonged resistance to the delusions suggests the third type but the rapid recovery is against this. A rather remarkable feature is the rapid and apparently complete recovery of both patients.

CASE 3. L. M., white female, single, aged 53. Diagnosis: Paranoia. The patient's father had a "stroke" two years preceding his death. Two paternal uncles were addicted to alcohol. There is no other history of nervous or mental diseases in the family.

The patient was the fourth of seven children. Birth and early development were normal. She graduated from public school and took some high school subjects and then went to a convent for about one year. She was very religious and wished to become a nun but her father was opposed to this. She was interested in writing poetry and some of her verse was published. She cared very little for men and had no love affairs. She was "the lady of the family" and maintained this standing at the expense of other members of the family. She had great influence over her sisters.

About 12 years ago, she and a male business partner started a small store. For a time the business prospered; then her partner died and business gradually became worse and worse until finally she had to give it up.

After the death of her partner, though his physician gave the cause of death as heart disease, L. M. went to a judge and told him that she suspected that her partner had been poisoned by a Mr. R. The judge refused to start an investigation. Since then the patient has had much trouble with her neighbors and she believes that Mr. R. was the instigator of the plots against her and her sisters.

After her father's death in 1923, the patient lived with her sister, Miss I. M. This sister died in 1929. Then another sister, Miss S. M., went to live with her and two years later a third sister, Miss O. M., joined them. Both these sisters accepted the patient's idea that they were being persecuted and that Mr. R. was the cause of all their troubles. L. M. thought that their neighbors were very disreputable people and believed that one of them kept a disorderly house where liquor was sold and prostitution was practiced. She thought that this neighbor's garage was built partly on her property; therefore she built a fence in what she thought was the proper position and the neighbors promptly tore this down. She believed that they sold "dope" which was supplied by a local physician. She claimed that a woman who lived near her had many male callers and that therefore this woman was a prostitute.

She thought she could hear people moving around her house at night but she could not discover their identity. They destroyed some of her clothing and threw rubbish in through the windows. At last a friend advised O. M. to allow the house to get very dirty and untidy; then the prowler would see this and would go to the health officer to report the condition and they would thus find out who was trespassing on their property. The sisters accepted this plan and carried it out so thoroughly that the health officer actually did intervene and the three sisters were sent to the State hospital on November 6, 1933.

In the hospital L. M. expressed ideas very much as given above. She had

a suspicion that two of the hospital physicians were involved in a plot against them. Her condition has shown no change, the delusions being as firmly fixed as on admission. Physical examination was essentially negative. Wassermann, urine and blood chemistry were negative.

CASE 4. O. M., white female, single, aged 56. Diagnosis: Paranoia, induced. This patient, a sister of case three, was the third in a family of seven. She attended high school for one year and following this worked in a factory for five years. Then she became a dressmaker and followed this occupation for 15 years. For a number of years past she worked in another city as a "practical nurse." As a young woman she was popular, dressed well, enjoyed dancing and had many male friends. It is said that she would have married had she not been so much under the influence of her sister L. M.

About two years ago, she returned to her home town to live with her sisters, L. M. and S. M. She soon began to believe the delusions entertained by her sisters. About six months before her admission to the hospital, she and S. M. began sleeping in their garage occasionally, hoping to catch the intruders. She was told by a friend to let the house get dirty and she told her sisters of this plan and they adopted it. In the hospital she refused to reveal the identity of this friend. She expressed the same ideas as her sisters. When asked who was the leader in the family she said it was between herself and L. M. Her condition has shown no change during her hospital residence and the delusions of persecution remain quite fixed.

There were no important physical findings. Wassermann, urine and blood chemistry were all negative.

CASE 5: S. M., white female, single, aged 58. Diagnosis: Paranoia, induced. This sister was the second in the family. She was rather delicate during childhood but had no serious illnesses. She left school after finishing the seventh grade in order to assist with the housework at home. After the death of her mother, she assumed the responsibility of keeping house for her father. One of the informants described her as "the family drudge." After her sisters were grown up, she worked as a domestic servant and as a "practical nurse." She attended church regularly. She cared nothing for male friends.

About four years ago she lost her position and returned to her home town to live with her sister, L. M., and later they were joined by O. M. Her delusions were the same as those of the two sisters described above and her ideas of persecution persist quite unchanged. Physical examination revealed nothing important and routine laboratory tests were negative.

COMMENT

These three cases seem to present all the essential features of folie à deux. L. M. developed her delusions first and the other sisters were not affected until after they went to live with her. Throughout the history L. M. is described as the dominant personality. O. M. was apparently the more nearly normal of the three and was not particularly lacking in will-power. S. M., although the oldest, is definitely submissive and very easily influenced. Thus L. M. may be regarded as the primary case and the other two as secondary cases of folie imposée. As there has been no fading of the delusions, the prognosis is considered serious in all three cases but it is somewhat better for the secondary cases than for the primary.

CASE 6: R. S., white male, married, aged 54. Diagnosis: Involution melancholia. No information could be obtained concerning the family history and the childhood of the patient. As an adult he was well-educated and well-informed and he became a minister in a small rural community. He was friendly and sociable, belonged to the Masons and to many church organizations. At about the age of 30, he married a woman five years his junior. He was affectionate toward his wife and married life was apparently happy but the patient worried greatly over any ailment his wife might have. The wife had one pregnancy which resulted in a miscarriage. The informant made the statement that the husband was not as prudish as his wife but that he avoided sex topics.

As there was no one in intimate contact with the patient and his wife at the onset of the mental illness, the information is scanty. Several of the patient's neighbors stated that he became ill during the summer of 1930. In September, 1930, he and his wife went to a sanitarium where they remained for two months. Upon his return home, he felt better but the neighbors thought that he and his wife acted very queerly. Sometimes they would not go to the door when they had callers. A neighbor went to their house every day and assisted with the housework. On one occasion R. S. told this woman that he was insane but that he had "just a rim of sanity left." He said his wife was losing her mind too. He made the woman promise not to tell what he had told her but a few days later he himself told it to another neighbor. In March, 1931, the wife's brother took them to another State with him. Upon his arrival there, R. S. was calm and in good contact. Later he appeared depressed, said he was insane and told his

wife that she was insane too. He tore up clothing, threw away money, said his optic nerves were going bad and that he was losing his sight and he refused to eat unless his wife ate too. He was suspicious and fearful and thought his wife's food was being poisoned. He stated that he and his wife were going to hell and that he saw fire prepared for them. It was finally necessary to send both patients to a psychopathic hospital, and a short time later they were returned to New York State and were admitted to a State hospital.

In the State hospital the patient was cooperative but was restless and depressed and said his wife was dead. He complained of failing vision, defective memory, weakness of his hands and of a tugging sensation in his scrotum. Physical examination was essentially negative. He continued depressed, retarded and slightly agitated. On one occasion he said that he should be castrated and that his illness was due to masturbation when he was a boy. He spoke little spontaneously. At times it was necessary to spoon-feed him. Occasionally he seemed fearful, confused and puzzled and would remove all his clothing and wander about the ward nude. He said that his doctor had given him medicine which had dried up his semen and had stopped the action of his bowels and bladder. He declared that he was sinful and that he had never been a minister. His condition showed little change until early in 1933. He did practically no work, moved about slowly and had to be forced into the dining-room and required spoon-feeding at times. He was impulsively violent. He appeared fearful and mumbled to himself, "Oh dear, oh dear." For a time his answers to questions were nearly always negative no matter what the question. His general appearance was one of marked depression and sometimes he was quite agitated. About March, 1933, he began to show some improvement and talked more readily. When he had visitors he smiled and jested with them. In June he began to work in the occupational therapy department but he often asked his physician for permission to stay away from his work. Recently he has become more irritable and assaultive and he uses much profane language. He has been somewhat unclean in habits throughout his residence in the hospital.

CASE 7: C. S., white female, married, aged 49. Diagnosis: Involution melancholia. This patient is the wife of case number six. We have no family history and no information concerning her childhood. She was a normal school graduate and she taught school before her marriage. Married life was happy. The only pregnancy resulted in a miscarriage. She had two operations for tumors of the breasts. One breast was amputated in 1921 and the other in 1924. The patient was a hard worker and a capable house-

wife. She was extremely prudish, easily shocked, avoided sex topics, never attended dances, was stubborn, exacting, sensitive, easily irritated and held grudges. Yet she enjoyed company and had many friends.

In September, 1930, she accompanied her husband to the sanitarium and they remained there until November. We have no information as to her condition at that time but it is stated that she acted queerly soon after her return home. She worried about the expenses of the stay in the sanitarium and about her husband's illness. When alone, she would wring her hands and repeat "What shall I do?" In March, 1931, her brother came to take them to another State. While the neighbors were doing the packing for them, she would wring her hands, pull dishes out of the barrels and try to unpack the trunks. She had to be forced into the automobile. At her brother's home she was depressed, said she had no food, clothing or money, expressed a desire to die and asked her sister to turn on the gas. She suggested that she and her husband should go out into the snow and freeze to death and she warned everyone that something terrible was going to happen. After a week she and her husband were hospitalized and soon after were returned to New York State where they were admitted to a State hospital. Here she was depressed and agitated, refused to eat and said that she was starving to death. She refused to wash or to change her clothing. Physical examination was negative except for scars of bilateral breast amputation.

Her condition continued for several weeks very much the same. She was impulsively violent. She expressed a wish to die but said that she was living in eternity and would suffer forever. She stated that she was not married, did not believe in marriage and had been living as a common-law wife. She heard God's voice telling her to lead others into the Faith. She was depressed and fearful and said she was worried about her husband's illness and she gave this as a cause of her own mental trouble. After a few months she began to show some insight and improved slightly until November, 1932, when she became much more depressed and moaned a great deal. At that time she said she was covered with "filthy stuff" and thought people were saying untrue things about her. Her condition has become worse since then and she is now unclean in habits and is very markedly agitated and depressed.

COMMENT

In these two patients we have a man and wife of similar personality make-up, both prudish and showing a dislike for sexual topics, developing psychoses with very similar but not identical delusions.

Both patients were in the involutionary period at the time of onset and both have shown very marked depression and definite regression. The husband's psychosis began shortly before the wife's and was probably the precipitating factor in her case. The prognosis is unfavorable in both cases. These cases appear to fit in the second group, namely folie simultanée.

BIBLIOGRAPHY

1. Wm. A. Boyd, B. S., M. D. A contribution to the study of folie à deux with report of a case. *Medical Record*, July 13, 1912.
2. S. N. Clark, M. D. Report of cases of folie à deux. *Illinois Medical Journal*, June, 1917.
3. John H. W. Rhein, M. D. Folie à deux. *New York Medical Journal and Medical Record*, Sept. 6, 1922.

A CASE OF CEREBRAL METASTATIC MELANOMA SIMULATING CEREBROSPINAL MENINGITIS AND ENCEPHALITIS*

BY JOSEPH S. GREWAL, M. D., AND WILLIAM E. KELLY, M. D.

The primary aim in presenting this case is to point out the complex cerebral symptomatology produced by a cerebral metastatic melanoma involving the brain and its coverings, thus making it difficult to distinguish from cerebrospinal meningitis and encephalitis. It is also intended to point out the changes in the personality which appeared as very early manifestations of the cerebral involvement. Primary tumors of the meninges, grouped under the general name of sarcomata, giving a similar confusing picture have already been described by previous workers (Ford, F. R., and Feror, W. M.).¹ Clinicians are also fully aware of the cerebral symptoms presented by a fairly large number of patients with intracranial metastases. Primary tumors of the cerebral hemispheres, when located in the frontal or parietal regions may produce, a picture not unlike that of cerebrospinal meningitis and encephalitis. This is especially true when the case is early and the intracranial pressure has not changed appreciably enough to produce the characteristic symptoms. The mechanism whereby these symptoms are produced is exactly the same in all of these cases, although the agent producing them may be different. In the so-called pyogenic cerebrospinal meningitis and encephalitis the different bacteria may play the same role as the tumor cells do in the metastatic or primary cases mentioned above. Unless the causative factor is mentioned, the diagnosis of cerebrospinal meningitis and encephalitis remains therefore incomplete. In the case presented here it was not possible to arrive at any more accurate diagnosis, although a possibility of pyogenic meningitis was considered. However, the post-mortem examination revealed a totally unexpected condition which in turn became a subject of still greater interest in regard to the primary site of origin of the neoplastic condition.

*From the Department of Neuropathology of the New York State Psychiatric Institute and Hospital, New York, N. Y., and The Middletown State Hospital, Middletown, N. Y.

The authors wish to express their thanks to Dr. Solomon Kleimer of the Middletown State Homeopathic Hospital to whom they are indebted for the clinical data on the case.

The case history presented here is given exactly as it came to the attention of the various physicians who examined the patient during his illness. The sequence of events is adhered to in precise order because it brings to light some of the most characteristic features of this tumor.

CASE HISTORY

The patient, W. M., a single, white, male subject, 26 years old. From the information received it appears that the patient had been a normal child, attended grammar school, was considered when a young boy as a congenial, good-natured individual, but was not a good mixer and made few friends. At home he got along very well, being quite devoted to his mother and would worry very much about her. For the past five years he had been working in New York and little is known of his life in the city. He does not appear to have had many interests, explaining as he did later that he worked hard and wanted to have a good time for his money.

During the last five years he worked nights, and according to his relatives, he had been gradually losing weight and strength. It was about the first week of April, 1932, that he developed what he called a bad cold in the chest, with pains in the back, legs and abdomen. After having consulted a number of doctors, he finally agreed to have X-ray examination of his gastrointestinal tract. The films were entirely negative. He was given some physiotherapy treatment for "rheumatic pains." A few weeks later the symptoms became more marked and he appeared nervous, cranky, and irritable. He became quite talkative and the parents noticed that at times his speech did not seem quite coherent. He argued and quarrelled at home, a thing which was quite unusual for him to do. It is also apparent from the informant's description that he was at times actively hallucinated. There was a definite change in his personality. A number of physicians had been called in to see the patient and a number of diagnoses had been suggested, among which rheumatism, appendicitis and pleurisy are the outstanding. Seventeen of his teeth were extracted at one sitting for a possible source of infection producing rheumatic pains. He lost considerable blood and became quite weakened. A few weeks later stiffness appeared in the muscles of neck and back. At night his entire body became rigid and tender and he vomited a number of times. His eyes were staring and protruding, his speech was rambling and disjointed, and there seemed to be a slight rise in temperature. He was taken to a local hospital where his mental symptoms became more pronounced. He became delirious, noisy, resistive, and uncooperative. When he was first taken to a hospital, he

was flighty, loquacious, extremely affectionate and tried to embrace the nurses. He ran about the room and assumed many queer postures, ran into the shower with his bathrobe on, finally became quite abusive and obscene. On May 26, 1932, he was transferred to a State hospital. On examination he appeared exhausted. His features were drawn, pinched and haggard. Pupils were dilated and internal strabismus was noticed. He sat rigidly on a bench. His head was retracted and held stiff and rigid in one position. His speech was disjointed and incoherent. His sensorium was totally clouded. In the ward he lay on his right side with face turned away from light. Neck and back were over-extended and knees were flexed and drawn up. Facial expression was fixed, and staring. Cervical muscles and muscles of the back were extremely rigid. Pupils were large and unequal, the right being larger than the left. There was an alternating myosis and mydriasis. Both reacted sluggishly to light and accommodation. A slight internal strabismus was definite. Ophthalmoscopic examination revealed evidences of bilateral papilledema. On the right side there was protrusion of the optic nerve head. The retinal vessels were tortuous. Veins were dilated and there was a whitish exudate present. On the left side choking of the disc was more marked. There was a great swelling of the optic nerve head, the margins of which were extremely indistinct. Heart sounds were rapid and of good quality. No murmurs were heard. No cardiac enlargement was noticed. The pulse was regular and the rate was 120 per minute. Blood pressure at this time was 124/100. Lungs were entirely negative. Entire abdomen was rigid and tense. There was slight hyperesthesia, but there was no definite area of distinct tenderness at any portion. Knees were flexed and musculature of the legs was rigid. There was a generalized twitching of the muscles of the upper and lower extremities. Superficial reflexes were absent and the deep reflexes were diminished. There was a marked positive Kernig sign present. His temperature on admission was 101.4. Blood count revealed hemoglobin 75 per cent and leucocyte count of 12,700, of which 36 per cent were polymorphonuclears and 1 per cent eosinophiles. Urine examination revealed traces of albumin, a few clumps of pus cells and a few unidentified epithelial cells. Spinal puncture revealed a thick cloudy fluid under a pressure of 14 mm. of Hg. Cell count of the spinal fluid was 800, polymorphonuclears predominating 10-1. There was a marked increase of globulin. Gold sol. 0-0-0-0-1-2-3-3-3. No organisms were found in the fluid. Twenty minutes after removal the fluid settled into a solid gelatinous mass leaving a small layer of supernatant fluid above. Spinal fluid was sent to the laboratory for guinea pig inoculation for tuberculosis. This was reported as negative. Blood culture





Fig. 1. Cortical section of right cerebral hemispheres passing through the frontal lobe a little anterior to the precentral convolution, showing two large irregular but well demarcated areas of softening and hemorrhage. The larger of the two encroaches upon the precentral gyrus. They are made up of tumor tissue and contain a large amount of melanotic pigment.



Fig. 2. Right cerebral hemisphere showing subarachnoid deposit of pigment containing tumor tissue. Numerous oval to spheroidal cortical tumor masses are also seen.

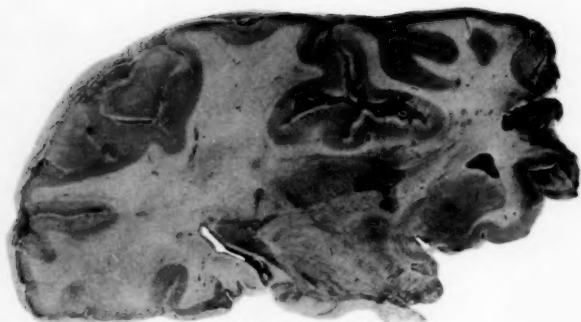


Fig. 3. Coronal section of the left hemisphere passing through the region of the thalamus showing marked thickening and pigmentation of the pia arachnoid over the temporal lobe and in the meningeal coverings of the insula. A dark half moon shaped area in the region of the putamen represents focus of tumor tissue.

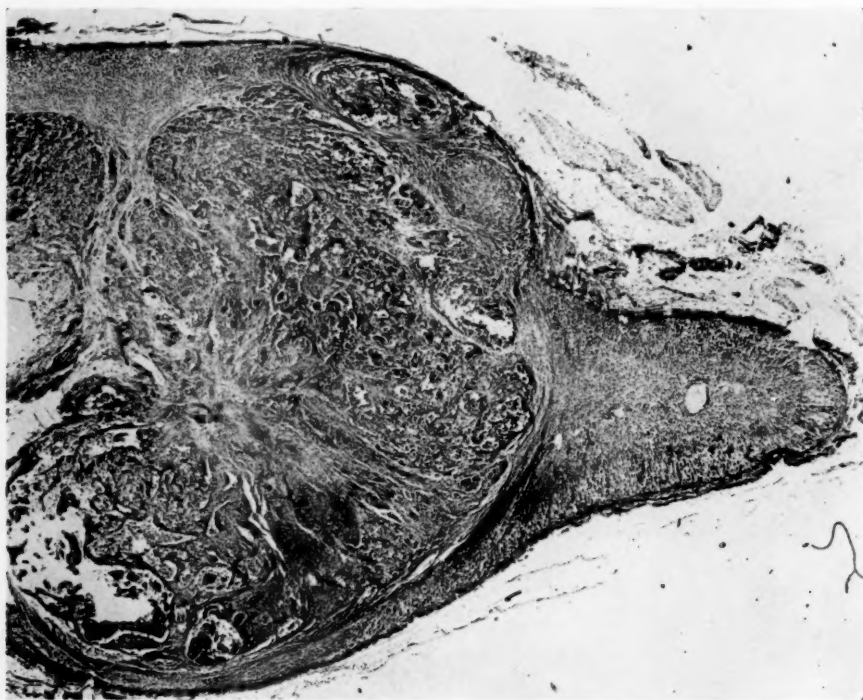


Fig. 4. Left adrenal showing presence of tumor tissue in its medullary portion. The tumor tissue appears to be made up of a large number of nodular growth closely packed together producing pressure necrosis of the surrounding adrenal tissue. Areas of necrosis, haemorrhage and liquification are also seen in the larger tumor masses. The general arrangement of the tumor tissue here suggests a possible spread through the blood sinusoids of the organ.

was negative. While in the hospital the temperature ran from 99 in the morning to 101 at night. On June 8 there was an aggravation of all the symptoms. He became comatose and his temperature rose to 103. Spinal puncture done that day at different levels did not reveal any fluid. Heart sounds became weaker. Pulmonary edema developed rather rapidly and the patient died on June 9, 1932, at 11:48 p. m.

Just before death the patient had several generalized convulsive seizures, each of which lasted a few minutes. The following final clinical diagnosis was made—subacute basilar cerebrospinal meningitis and encephalitis (pyogenic?).

POST-MORTEM FINDINGS

Head. Dura mater is rather thickened and adherent at places to the underlying pia-arachnoid, particularly in the region of the frontal lobe. Pia arachnoid is cloudy throughout. Cerebral vessels are congested and there is only a small amount of cerebrospinal fluid present. The entire brain weighs 1510 gms. The convolutions are somewhat flattened and the brain substance is softer in consistency than normally. There extends over many areas of cortex an apparently subpial brown pigmentation which is very dense over the basilar fossa and the hippocampal gyri. There are several additional pigmented areas varying in size from 1-5 mm. over both the orbital convolutions and parietal and occipital lobes. There is also very deep pigmentation over the posterior portion of the right temporal lobe. The meninges within the Sylvian fissure are thickened and pigment-containing. On gross examination, after sectioning the entire brain, two large round well circumscribed soft tumor masses are found in the right hemisphere. The larger of the two extended from the frontal lobe into the precentral convolution measuring 3.5x2x1.5 cm. in diameters (Fig. 1.). The other is $\frac{1}{4}$ of this size. Both of these masses are of dark brown color and show marked central softening and foci of hemorrhage with partial liquefaction. In addition to these, several other cortical nodules of brown substance are seen (Fig. 2). These vary in diameter from 1-5 mm. These nodules are well demarcated and appear to be continuous with the dark colored thickened pia arachnoid. Similar small nodules are also seen in the left putamen, globus pallidus, and temporal variation (Fig. 3).

Right lung weighs 780 gms. and the left 730 gms. Both show marked terminal congestion at the bases. Spleen is enlarged to almost three times the normal size and on sectioning reveals a large nodular tumor mass measuring 4x4.5x3 cm. in diameters. The central portion of the mass is soft and friable. It is of decidedly lighter color than the peripheral portion of the tumor mass. The substance of the spleen around the mass is also soft, edematous and somewhat compressed.

Liver weighs 1650 gms. Both the superior and inferior surfaces show a slightly projecting irregular nodular tumor mass. On sectioning it is made up of numerous closely packed together nodules showing areas of central necrosis and softening. The liver substance is compressed around the tumor masses and reveals a large amount of bile pigment.

Right kidney and the adrenal together weigh 570 gms. The adrenal is made up of a large friable nodular tumor mass which on sectioning reveals central necrosis and areas of liquefaction. Only a small portion of the adrenal can be recognized here and there. The tumor mass measures 19x10x9.5 cm. in diameters. The mass is firmly adherent to the kidney capsule, but on sectioning it is clearly noticeable that the kidney substance is not invaded by the tumor tissue.

Left kidney shows slight edema and weighs 140 gms. The left adrenal is also enlarged from the presence of a tumor mass measuring 2.5x1.5x1 cm. in diameters (Fig. 4).

HISTOLOGICAL STUDY

The histological features of the tumor tissue taken from different parts of the organs involved disclose that on the whole the tumor tissue is very cellular and vascular. Necrosis and hemorrhage are quite marked in the larger tumor masses. A large amount of dark pigment is noticed especially in the sections prepared from cerebral lesions. In places where blood supply is deficient and space limited the tumor is less cellular and reveals a fairly large amount of connective tissue stroma. The cells are smaller, elongated and spindle-shaped. In better preserved areas, however, the tumor cells vary considerably in size and shape (Fig. 5). They are mostly grouped around the delicate thin walled and greatly distended capillaries (Fig. 6), the endothelial lining of which can be easily distinguished from the tumor cells. These latter cells possess a distinct cell membrane (Fig. 7). They are large and clear cells and contain a large deep staining nucleus. Some of the cells contain more than one nucleus, others present a large irregular distorted deep staining mass representing a single or fused nuclei. Mitoses are easily seen. The cytoplasm is abundant and appears clear. There is, however, a large amount of dark dirty brown to black pigment present in the cytoplasm of these cells. The pigment varies in amount in different cells. In places it forms a coarsely granular mass, in others it completely fills the cell body

obscuring the nucleus entirely from view. The connective tissue cells supporting the tumor element also contain a large amount of the pigment. The endothelial cells lining the capillaries too contain a good deal of the pigment. Sections of the brain cortex reveal exactly how the tumor cells, after having reached the cerebrospinal fluid, seem to form a coating over the external surface of the cortex (Fig. 8). In places thick plaques of tumor tissue are formed where the coverings of the brain have become firmly adherent to the cortical surface of the brain. In the depth of the sulci larger masses encroaching upon and destroying the brain substance are formed. The perivascular spaces in the cortex of the brain are completely filled by the tumor cells and in many instances reveal how by their proliferation the small cortical nodules are eventually formed (Fig. 9).

The diagnosis of melanoma was apparent from the above findings, but more difficult appeared the finding of the primary location of the tumor. Melanotic tumors arising in the meninges have been reported frequently (Kraft,² Moren,³ Globus,⁴ Heilman⁵) since the neurogenic theory of origin of this tumor has been almost convincingly put forward by Masson and supported by a number of outstanding pathologists and clinicians. Primary melanotic tumors have also been reported to arise in the medullary portions of adrenals (Smith, R. M.⁶), mucosa of intestinal tract, and such other locations (Koch⁷), which are removed far enough from the skin to leave doubt as to its sole origin from the epidermis. However, if one glances through the entire literature, one becomes quite uncertain as to what theory to accept concerning the origin of such type of tumor. It is pretentious to feel that any clarification of the theory of origin of the melanomas can result from the study of a single case. Nevertheless, the study of one case is always instructive from one or another angle. In this particular instance, the interest lies, among other things, in the fact that had the post-mortem examination been limited only to the head the final diagnosis of primary melanotic tumor of meninges might have gone on record. If, on the other hand, the examination of the abdomen only had been permitted, then the primary location in the medulla of the right adrenal might have been the most logical result. In order to

further elucidate the possible origin of the tumor, the relatives of the deceased were once more reached and special inquiry was made into the past history of the patient in regard to the excision of any pigmented lesion previous to his present illness. The mother then remembered that he did have a birth mark on the right side of his body along the belt line. About 8 years ago this birth mark became irritated and inflamed. It was then cauterized and completely excised by electricity. The wound had completely healed. There was no local recurrence of the lesion. This very important statement leads naturally to the consideration that possibly the primary lesion might have existed in the excised pigmented nevus of right lumbar region from which it gradually metastasized to right and left adrenals, liver, spleen, retroperitoneal lymph nodes, meninges and the brain.

The term melanoma has been selected in preference to any other terminology used because it does not carry any further meaning than the fact that the tumor is made up of cells that produce melanotic pigment. Regarding the exact nature of origin of this tumor cell, opinion is far from uniform. A variety of terms are in use, depending upon what particular theory of origin is accepted by the investigator using it. The very early conception of the origin of the melanoma may be found in the opinions of Demieville, Lobenbach, Polland and Jonston, according to whom the nevus cells were claimed to have a very definite relationship with the endothelial lining of the blood vessels and lymphatics. Melano-endothelioma was the most appropriate term used. But this theory is now disclaimed by nearly all the investigators in this line. Next came a group of investigators who considered the epithelium to be the most acceptable source of origin of this tumor. The term, melano-epithelioma or melano-carcinoma, was suggested for the tumor. This group is however, further subdivided as their opinions differ slightly from one another. Unna and his supporters (Dawson⁸) believe that nevi are formed from those embryonal epithelial cells that have been displaced during foetal life. Kreibich⁹ claims that chromatophores and chromatoblasts are the same cells and they arise in the epidermis proper. From that location they wander into the underlying cutis, where they become the nevus cells. Friboes¹⁰

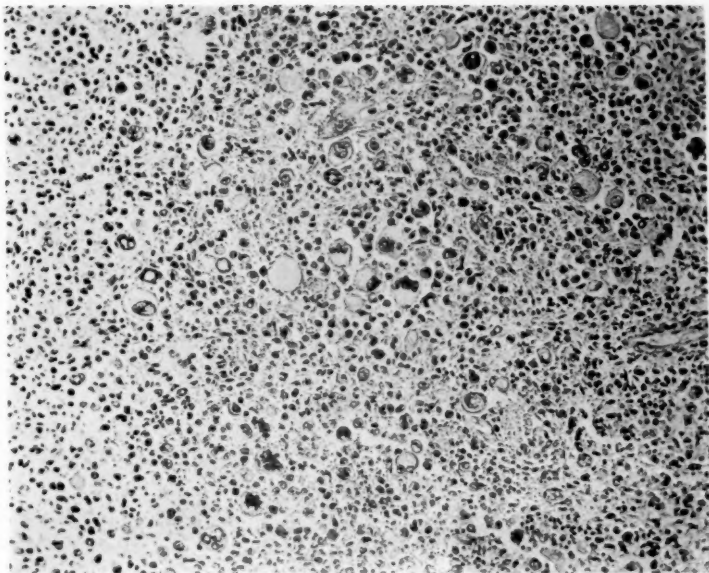


Fig. 5. A high power microphotograph of a cerebral metastatic lesion, showing marked cellular nature of the tumor tissue. The cells are very irregular in size and shape. The cellular membrane is quite distinct. Some of the cells contain more than one nucleus.

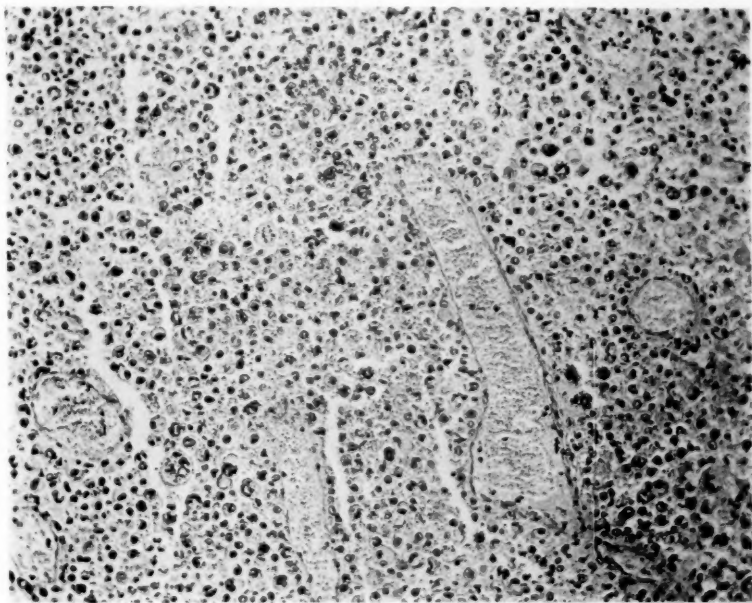


Fig. 6. Another high power microphotograph showing perivascular arrangement of tumor cells. The blood vessels are thin walled and greatly distended.



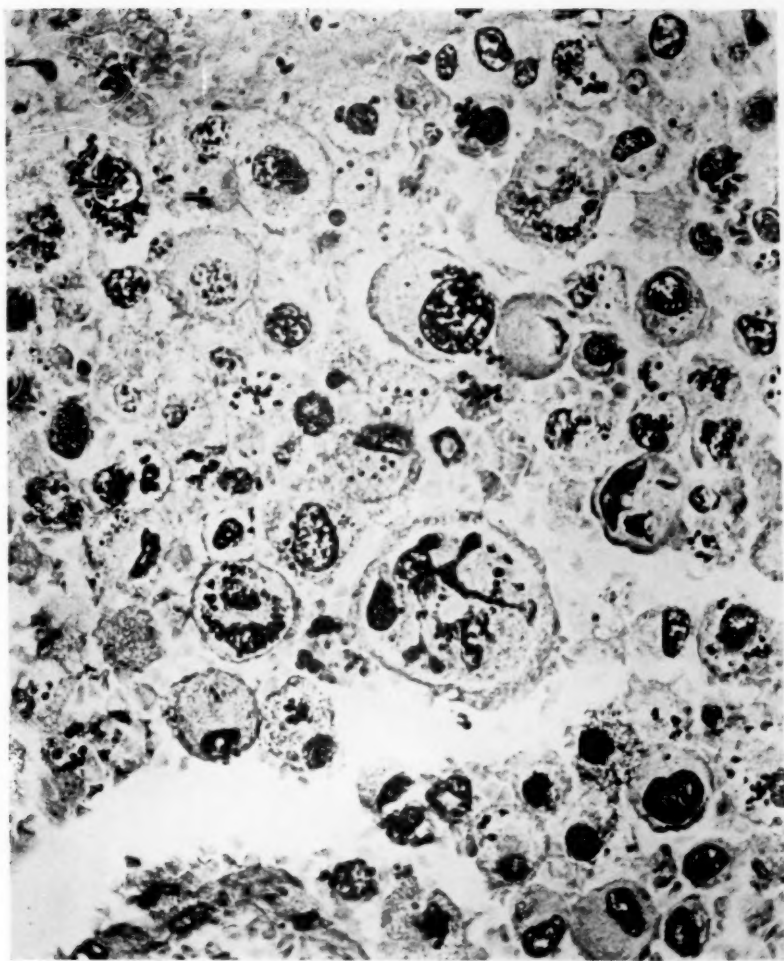


Fig. 7. A higher magnification of the Fig. 6, showing dark brown masses of and granules of melanotic pigment in the cytoplasm of tumor cells.

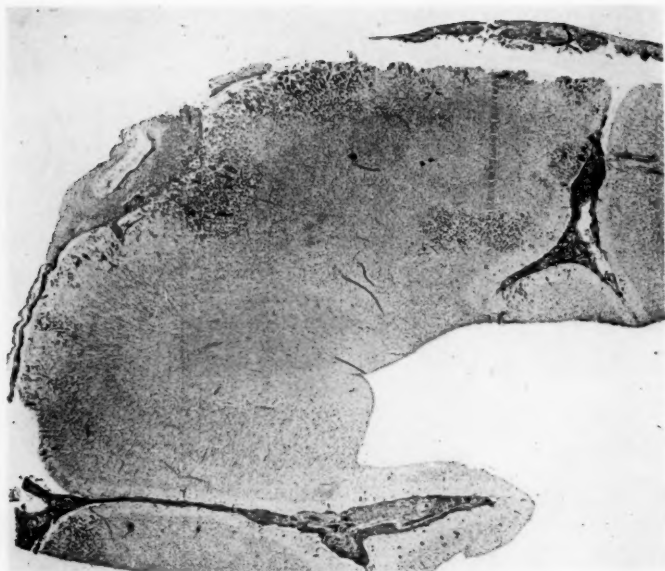


Fig. 8. A low power photomicrograph showing the thickening of the pia arachnoid by the pigment-containing tumor tissue and the perivascular spread of the tumor cells into the cortex of the brain. Still larger deposits of tumor tissue are seen in the deeper parts of the sulci.



Fig. 9. A higher magnification of Fig. 8, showing cortical vessels and perivascular deposits of tumor cells.

is of the opinion that nevi develop from the cells of the covering epithelium, but these cells are not the proper epithelial cells. According to him, they are specially differentiated epithelial cells, but of mesodermal origin. A little later, the opinion was presented that the nevi are mesenchymal in origin and that melanotic sarcoma is the correct term to be applied. Here again the supporters of such a view differ somewhat in the manner in which mesenchymal tissue is eventually transformed into a nevus. Darier,¹¹ in 1925, expressed the opinion that the pigment-forming apparatus is of mesenchymal origin. It is quite actively developing in foetal life, but in childhood it disappears almost entirely, leaving some remains only here and there. These residual pigment-forming cells show up as blue nevi. They grow further and out of them the malignant mesenchymal melanomas are formed. Ribbert,¹² along with Rieke and Riehl, claims that some highly differentiated pigment forming connective tissue cells called chromatophores are the cells of origin of this tumor. Most of the pathologists (Smith, D. T.¹³) today make a distinction between melano-sarcoma and melanocarcinoma, depending upon whether the tumor arose from the epithelium or the connective tissue. Thus they divide melanomas into two groups and believe that two totally different types of cells are responsible for their growth. They also make a definite distinction in the clinical manifestations of the two types of melanotic tumors. Lubarsch includes both the groups under the general classification of melanocystoblastoma or melanoblastoma. Horwitz,¹⁴ in his study of a large number of pigmented and non-pigmented tumors of this type, found that more than one-third of these cases had an undoubtful origin in a mole, a nevus, or a wart. He believes that these malignant growths begin in the basal cells of rete Malpighi. Loeseke,¹⁵ in 1927, stressed the point that the metaphasia of the cells plays an important part in the formation of melanotic tumors; hence the difficulty in arriving at a definite solution of the problem.

In connection with Horwitz's views we may add that the pigmented tumors of the skin are often very small in size. In their gross and histological appearance they are quite benign. If they are widely and deeply excised there is no danger of their recurrence

or distant metastasis. But a very slight trauma or friction may set up a mild inflammation. When this happens, then even a wide excision may fail to prevent its recurrence and distant metastasis. Such irritated nevi and moles present a very difficult problem to a pathologist when he is called upon to express his opinion about the histological appearance of the tumor in regard to its malignancy. Where such irritated nevi have been neglected for a long time, the histological picture will show definite activity of cell growth as manifested by larger more deeply staining nevus cells and possibly an occasional mitotic figure. Such cases should always be carefully watched for metastases to the regional lymph nodes or deeper organs of the body. Thus, although every one of the nevi and moles is not doomed to develop into malignant growth, yet even a very slight trauma might push them over to the danger zone. Out of all the irritated lesions, however, a large majority will give rise to distant metastases even if there may not be any local recurrence after proper excision. Occasionally such inflamed nevi or moles slough out and the wound is completely healed without recurrence. Yet in these cases metastases to the regional lymph nodes and distant parts of the body can take place. Of course, where such lesions have taken on unmistakable malignant features there the eventual outcome is nearly always fatal.

The most widely accepted theory today, however, is that of Masson.¹⁶ He starts with the idea that the nevus cell holds the same relationship to the cutaneous nerve endings as the tactile cells of Merkel-Ranvier and corpuscles or Wagner-Meissner to the peripheral nerve endings. This conclusion is based on his demonstration of the presence of fibrils belonging to and living in the cells forming the nevi. This he was able to do by special silver stainings done on various kinds of nevi and moles. He claims that these fibrils are neurites and that they are identical with the neurites seen in the peripheral neuroglia. Masson goes still further and maintains that there is a homologous familial relationship between the epitheloid cells of the nevi and the satellite elements of the various peripheral sensory organs. Furthermore, a similarity or genetic relationship is also pointed out between the nevi on one hand and the dermic neurogliomata, neuromata of regeneration and

Recklinghausen's neuromata on the other. According to him there is no difference between the various pigmented nevi. He considers all of them to be neuro-nevi and he claims that the cells forming them are the terminal neurones of tactile nerves. Lately Foot¹⁷ has done considerable work along these lines suggested by Masson and with the help of more delicate technique of doing silver staining has tried to bring out the nervous characteristics of this tumor cell.

CONCLUSIONS

1. A case of melanoma with visceral and intracranial metastases is reported.
2. The complex cerebral symptomatology and rather early changes in the personality of the patient are reported; and the clinical diagnosis of cerebrospinal meningitis and encephalitis which was offered in this case, is discussed.
3. The post-mortem examination revealing the presence of generalized metastatic involvement by a melanotic tumor and the presence of a skin lesion as a possible primary location of the tumor are brought out.
4. General histological features of the tumor tissue are given, and various theories concerning the origin of the tumor are reviewed.

BIBLIOGRAPHY

1. Ford, F. R., and Feror, W. M.: Primary Sarcomatosis of Leptomeninges. *Bull. Johns Hopkins*, 35: 1924, pp. 65-75.
2. Kraft, J.: Primary diffuse melano-sarcomatosis of pia-arachnoid and brain and cord. *Ztschr. f. Krebsforsch.* 29: 1929, pp. 74-82.
3. Moren, J. J.: Primary melano-sarcoma of meninges. *Kentucky M. J.* 28: Aug., 1930, pp. 382-384.
4. Globus, J. H., Farnell, F. J.: Primary melano-blastosis of leptomeninges and brain. *Arch. Neurol. and Psychiat.* 25: April, 1931, pp. 803-823.
5. Heilmann: Melano-sarcomatosis of pia mater. *Centralbl. f. Allg. Path. u. path. Anat.*, 52: Oct., 1931, pp. 369-372.
6. Smith, R. M.: Bilateral melanotic growth of adrenals. *M. J. Australia*, 1: 1927, pp. 683-684.
7. Koch, R.: Large primary melanoma of liver. *Virch. Arch. f. path.* 277: 1930, pp. 489-497.
8. Dawson, J. W.: Morphology and histogenesis of melanomas. *Edinburgh M. J.* 32: 1925, pp. 501-732.
9. Kreibich: *Arch. f. Dermat.* 31: 1921.
10. Frieboes: *Dermat. Z.*, 1920, Nr. 31, H. ½.
11. Darier: *Bull. Assoc. franc. Étude Canc.* 14: Nr. 5, 1925.
12. Ribbert: *Geschwulstlehre*, 1897, xxi, 471.
13. Smith, D. T.: *Bull. Johns Hopkins Hosp.* 36: Mar., 1925, pp. 185-198.
14. Horwitz, A.: *Ann. Surg.* 87: June, 1928, pp. 917-933.
15. Laeseke: *Ber. 35. Tag Ver. Nordwestdtsch Chir. Ref. Zbl. Chir.*, 1928, Nr. 13.
16. Masson: *Ann D'Anat. Pathol.* 3: 1926, p. 417.
17. Foot, N. C.: *Am. J. Path.* 7: Nov., 1931, pp. 619-630; *Am. J. Path.* 8: May, 1932, pp. 309-320 and 321-328.

A CEPHALIC MONSTER

*A Report of a Case of An Unusually Voluminous Meningoencephalocele**

BY DAVID T. DUBOW, M. D.,
NEW YORK, N. Y.

AND

FRANK M. KRAMER,
CURATOR, NEW YORK STATE PSYCHIATRIC INSTITUTE AND HOSPITAL

Extensive investigation of the literature on the occurrence of meningoencephalocele has not revealed the report of any case as pronounced as the one here reported. The infant herein described is believed to be a rare occurrence in that it presented two exceedingly large extra-cranial masses of cerebral tissue, and in that the child survived for a nine-day period of extrauterine life.

REPORT OF A CASE

The mother was a 28-year-old primipara. By profession she had been a nurse. Her own history was essentially negative. Labor and delivery were not noteworthy except that a sac-like cephalic appendage presented, causing the obstetrician to entertain momentarily the impression that he was dealing with a breech presentation. The mother's post-partum progress was uneventful. The infant weighed six pounds at birth. It was moderately cyanotic and dyspnoeic. It did not cry, neither did it make any other sound. When placed in any position it maintained that position fixedly and with scarcely any movement. It was observed that the eyes reacted to light. The sucking reflex was present, but was so diminished as to require feeding by the dropper method. Nourishment was given at frequent intervals, but it was accepted with less avidity than is the case with normal infants. The baby's condition remained practically unchanged during its nine days of life, i. e., it was continually in a state of semi-coma from which it could never be fully aroused. On the ninth day the cyanosis suddenly deepened acutely and the infant very shortly expired.

*From the Department of Neuropathology of the New York State Psychiatric Institute and Hospital





Fig. 1. Snapshot of the monstrosity showing the tremendous size of the sac as compared with the size of the infant's head.



Fig. 2. Basilar aspect of intra-cranial brain showing accessory temporal lobe and faulty development of right cerebellar hemisphere. Note the intense leptomeningeal congestion.

PATHOLOGICAL EXAMINATION

The body was that of a poorly nourished, emaciated, white male infant. Post-mortem lividity was present over the dependent parts, and rigor mortis was noted in the extremities. The skin was definitely icteric. The umbilicus appeared normal. Nothing noteworthy was observed in connection with the surface examination of the torso and extremities. The head was relatively small. Eyes, ears, mouth, and nasal passages were not remarkable, but the lips showed evidence of cyanosis. The forehead was exceptionally narrow in its longitudinal diameter, and the antero-superior aspect of the head appeared flattened. Both mastoid processes protruded in an unusually prominent fashion. A large sac-like structure, measuring 11x12x6 cm. was attached to the head in the region of the posterior fontanelle. (Fig. 1). This sac was entirely covered by skin which was continuous with that of the rest of the scalp. About the base of the sac there was disposed a collar of hair which also was continuous with the hair of the scalp. In general the mass had the consistency of a rubber bag filled with water, but on detailed palpation two moderately large, firm masses could be felt within its substance.

The autopsy permission was limited to the opening of the head. On prosection the cranial cavity was exposed by an incision passing over the vertex, with separation of the fontanelles and breaking back of the bones in the usual manner. The brain, which was bathed in an excess of fluid, was removed with difficulty because of its anomalies and because of the migration of a process of the right occipital lobe through the posterior fontanelle into the sac. The base of the skull was distorted and asymmetrical, the area of the posterior fossa on the right side being about one-fifth that of its mate. There was no suggestion of a tentorial structure on the right side. The foramen magnum was abnormally large. The atlanto-occipital articulation was a very loose arrangement, and a considerable space intervened between each superior facet of the atlas and corresponding condyle of the occipital bone.

The sac was removed by a circumferential incision through its base and close to its attachment with the rest of the scalp.

The brain was considerably congested, and all of the pial vessels

were engorged. After fixation the organ weighed 365 grams. The convolutions were somewhat flattened over the superior convexity, and on the right side an accessory lobe was attached in the region of the Sylvian fissure. (Fig. 2). No olfactory nerves could be identified, but all other cranial nerves were accounted for during the process of prosection. The cerebellum was distorted and misshapen, and its right hemisphere was represented by nothing more than a vestige. The pons and medulla were not remarkable. The brain on gross section was not noteworthy except for the anomalous arrangement of its lobes.

The sac contained 385 c.c. of blood stained fluid. On further investigation two masses of tissue, measuring respectively 10x7x5.5 cm. and 7x7x5.5 cm., were discovered; each bore a general resemblance to an accessory cerebrum; each presented definite convolutions; and each was covered by a pia-like membrane in the substance of which hemorrhagic exudation appeared to have taken place. One of these masses presented superficially a white friable tissue, and it was later found that the cortex and marrow of this particular mass were exactly inverted in their positional relationship to each other. Tissue of this same white friable variety was also found to line certain irregular areas of the internal surface of the sac wall. The frontal end of the other mass was attached by an irregularly shaped fold of convoluted cerebral tissue and membranes to the occipital lobe of the intra-cranial brain. The consistency of both accessory masses correspond exactly with that of the intra-cranial brain. On section both accessory masses presented essentially the same picture, as each of them possessed both cortex and white matter. A large ventricle was common to both of these structures, but nowhere could tissue suggestive of choroid plexus be discovered. (Fig. 3).

MICROSCOPIC EXAMINATION

Sections of the intra-cranial brain prepared with a nerve cell stain show on histological examination some irregularity of cortical stratification. The individual neurons appear poorly developed; their outlines in many instances are indistinct; and universally the outlines of the nuclei and the Nissl granules are poorly



Fig. 3. Dissection of sac showing masses of accessory cerebra. White covering of mass in lower right hand corner represents inversion of cortex and white matter. In the lower left hand corner is section taken from mass above it. The left hand tip of the centimeter rule is in contact with the folds of convoluted cerebral tissue which connected one accessory mass with the occipital lobe of the intracranial brain.



Fig. 4. Photomicrograph of cortex and white matter of accessory cerebral masses disclosing some regularity of cortical stratification. Several areas of gliosis are seen in the white substance. Numerous large thin-walled blood vessels are included in the meninges. (Bielschowsky-Plein method.)





Fig. 5. Details of the meninges of accessory cerebral mass. Many nests of small spindle cells (arachnoid elements) are included. The large thin-walled blood vessels are so numerous that they produce a picture not unlike that of an angioma. (Hematoxylin and Eosin.)

defined. There is, here and there, an increase of glia elements throughout the white matter, though impregnation with the gold sublimate method of Cajal discloses immature forms of glia cells, some having peculiarly oval or rounded bodies from which single long processes set forth. Very few cells of the adult astrocyte variety can be found. There is a moderate increase in the vascularity of the organ, and its meninges are slightly thickened.

Essentially identical microscopic pictures characterize both the extra-cranial masses. These structures include numerous neuroglia elements of a definitely embryonic character, with many unipolar spongioblasts detectable in the white matter. Some areas present fairly regular cortical stratification (Fig. 4), but only a few cells appear to possess all of the definite characteristics of a mature neuron. Such nerve cells as are discernible are abnormally small; morphologically they are elongated, with a single process appearing at one pole and two or three similar processes at the other pole. In many cells neither Nissl granules nor distinct nuclear membranes could be identified. In general, the body of each individual cell appears to be nearly filled by the poorly defined nucleus, with the cytoplasm being correspondingly diminished in amount. Deep in the white matter several small focal areas are apparently undergoing a softening process, and each such area is rimmed by proliferating glia elements. No ependymal cells or tissue suggestive of choroid plexus are seen.

The meninges are much thickened, and included within their substance are numerous peculiar nests of cells resembling arachnoid elements. In addition there are groups of large thin-walled blood vessels which are so numerous and so distended as to produce in the gross specimen an appearance of sub-arachnoid hemorrhage. (Fig. 5). The sac also contains an amount of bloody fluid in which a certain number of round embryonal cells are floating together with a moderate quantity of cholesterol. The wall of the sac consists of cutaneous structures covered with a layer of epithelium. Irregular areas on the internal surface of the sac wall are lined with tissue identical with that composing the accessory cerebral masses.

THE ARM-TO-CAROTID CIRCULATION TIME IN NORMAL AND SCHIZOPHRENIA SUBJECTS†

BY H. FREEMAN, M. D.,*

INTERNIST, RESEARCH SERVICE, WORCESTER STATE HOSPITAL

The frequent occurrence of circulatory abnormalities in schizophrenia such as hypotension,¹ cyanosis, and low venous oxygen content,² has led to an investigation of other aspects³ of the problem. As an integral part of this research, there was undertaken the determination of the arm-to-carotid circulation time by the cyanide method of Robb and Weiss.⁴

In the present investigation the arm-to-carotid circulation time was determined in a group of 73 male schizophrenic and 26 normal individuals. The patients were selected primarily on a basis of freedom from serious organic disease. They ranged in age from 20 to 46 years, the mean age being 31. In the majority of cases the psychosis had become somewhat chronic, the mean hospitalization period being 5 years. The control subjects were taken from the staff and employees of the Worcester State hospital and were all active and presumably free from illness. They were essentially within the same age range as the patients, the mean age, 28, being slightly lower. The daily activity and nutritional intake of both groups, living in a similar environment, were quite comparable.

In order to minimize the influence of extraneous factors, the determinations on the patients and controls were performed under strictly basal conditions. For confirmation of the results, a second series were made on 52** of the patients, approximately four months later, under similar circumstances. On the afternoon of the same day, about two hours after the noon meal, the test was repeated on 45 of the second group in order to evaluate the effect of "basality." In the case of the control subjects, two series of determinations were made on the same day, the first (on 26) under basal conditions, and the second (on 23 of these) in the afternoon.

†From the Research Service of the Worcester State Hospital, and the Memorial Foundation for Neuro-Endocrine Research, Worcester, Massachusetts.

*With the collaboration of the research staff.

**The lesser number of patients was due to the elimination of some for a variety of reasons, such as absence from the hospital, lack of cooperation or treatment with some medication and not to any selective process.

The technic of the test, as described by Robb and Weiss,⁴ is simple. The subject reclines quietly for at least 30 minutes to reduce the fluctuations in the circulatory mechanism to a minimum, this point being determined by a constancy of blood pressure and pulse rate determinations. Eight milligrams of sodium cyanide contained in a 2 per cent aqueous solution is then drawn into a small syringe and the median basilic vein punctured. The tourniquet is immediately released, and, after an interval of 60 seconds, the solution is rapidly injected. The arrival of the cyanide at the carotid sinus with its reflex stimulation of the respiratory center is marked by the sudden onset of a transitory hyperpnoea and tachycardia. This interval between the moment of injection and the occurrence of hyperpnoea, as measured by a stop watch, is taken as the circulation (arm-to-carotid) time. If the respiratory effect does not occur, or is of a gradual character, it is evident that the threshold dose has not been reached and the test is repeated after 10 minutes, with an increase of 0.1 c.c. or 2 mgm. in the amount of the drug, until an adequate response has been given. In the majority of cases a clean-cut hyperpnoeic response may be evoked by dosages not greater than 0.6 c.c. (12 mgm.).

The results of the study are summarized in Table I. In the patients the mean of the first series of basal determinations was 25.6 seconds, with the majority of values falling between 19 and 32. The range, however, was quite broad, extending from a minimum of 15.4 to a maximum of 45.6 seconds. In the second basal series the mean value was somewhat increased, to 27.9 seconds, the bulk of the figures occurring between 19 and 36 seconds. The range was slightly increased at its upper extreme. The difference between the means of the two series is not statistically significant and this increase in the circulation time may be the result rather of random variation than of the introduction of a new factor, although the possibility of seasonal effect cannot be entirely excluded. In the non-basal series the mean becomes significantly smaller, falling to a level of 23.0 seconds, with its values grouped chiefly between 18 and 28 seconds. The range, too, decreases, the primary effect again being on the upper portion. If we examine the data concerning the state of the circulation at the time of the tests, we

find that, as between the two basal series, although the mean blood pressure did not change, the mean pulse rate dropped from 62 to 58 beats per minute. We may regard this as an indication of a lesser degree of emotional tension in the second series which, consequently, may be considered as the more reliable of the two determinations. In the non-basal series, accompanying the change in the circulation time, the mean systolic blood pressure rose from 106 to 112 mm. with a parallel increase in the mean pulse rate from 58 to 68. There was practically no change in the diastolic. Whether or not it is to these factors that the variation between the basal and the non-basal values may be attributed, it is evident that in the present group of schizophrenics, at least, repeated determinations show more consistency under similar conditions of "basality" over a long period of time than under dissimilar conditions on the same day.

The control subjects under basal conditions showed a mean circulation time of 21.9 seconds, the majority of the determinations as shown by the standard deviations falling between 15 and 28 seconds. The range was slightly smaller than that of the patients, the values being at a somewhat lower level. In the afternoon the mean value was 21.4 seconds, with an essentially similar distribution. The difference of 3.6 seconds between the mean of the first basal series of the patients and that of the normal controls cannot be considered absolutely significant, being only 2.4 times its standard error. However, the odds against its representing merely "sampling error" are approximately 60:1.

Between the mean of the second patients' basal series and the normal values the difference of 6.0 seconds is statistically highly significant and is an indication of a definite difference in the circulatory conditions of the two groups. Because of the greater degree of relaxation in the second schizophrenic series, as evidenced by the lower pulse rate, and because of the lesser interval of time between this series and that of the normals (2 months), with a consequent minimizing of any possible seasonal influence, this set of determinations should be considered more suitable as a basis of comparison. The point may be raised that in a second series of tests under basal conditions on the normal subjects, a

similar degree of slowing might be obtained which might diminish the difference previously shown. A definite objection to this hypothesis is the consistency in the mean values exhibited by the normal individuals under the variable conditions of the day, during which the patients presented the greater difference.

The non-basal series of the two groups show essentially very little difference between the means. Here, again, would seem to be an indication, as in the cases of the blood pressure⁵ and the oxygen consumption,⁶ that although in the basal state the schizophrenic tends to "slump" to subnormal levels, under the appropriate stimulus he tends to respond essentially to a normal degree.

The similarity of the mean values of the basal and non-basal series in the normal subjects is of particular interest. In the afternoon the systolic blood pressure in this group had risen from 111 to 118 mm. and the pulse rate increased from 66 to 73 beats per minute. Thus, despite a change in the vascular state similar to that in the patients, the circulation time was not decreased. An explanation for this difference in behavior may lie in a consideration of the fundamental processes controlling the hemodynamic mechanism. If the blood vessels were a purely mechanical system of semi-rigid tubes, an increase in the rate and force of ventricular contraction would inevitably result in an increase in the rate of blood flow, once the elasticity of the arterial wall had been overcome by the rise in intravascular pressure. It is the function, however, of the regulatory mechanism so to redistribute the system of forces as to allow the maintenance of a certain degree of constancy in the various physiological processes⁷—in the present instance, possibly by opening new vascular channels and thus decreasing the pressure head. If the assumption may be made that the efficiency of the adjustment system be impaired, then the mechanical forces have freer rein. Such a hypothesis would fall in with the abnormal displacement of the homeostatic forces in schizophrenia already postulated by Hoskins.³

A further point to be noted is the similarity in the scatter of the measures both among the patients and in the normals (Table I). Despite the wider range in the psychotic subjects, the spread of the values as evidenced by the magnitudes of the standard devia-

TABLE I. CONSTANTS OF DISTRIBUTIONS OF PATIENTS AND NORMAL SUBJECTS

Circulation time	N.	Min.	Max.	Range	Mean	Standard deviation	Coefficient of variation, per cent
Patients:							
1st series (basal)	73	15.4	45.6	30.2	25.55 \pm 0.77	6.62 \pm 0.55	25.9
2nd series (basal)	52	15.7	50.1	34.4	27.94 \pm 1.22	8.81 \pm 0.86	31.5
2nd series (non-basal) . .	45	15.4	34.8	19.4	23.01 \pm 0.79	5.32 \pm 0.56	23.1
Normal subjects (basal) . . .	26	12.7	40.0	27.3	21.92 \pm 1.30	6.64 \pm 0.92	30.3
Normal subjects (non-basal)	23	11.0	35.3	24.3	21.40 \pm 1.31	6.28 \pm 0.93	29.3

tions, shows practically no difference. It may be assumed, therefore, that on single determinations the circulation time in schizophrenic individuals shows no greater degree of variability than among control subjects.

The presence of several series of tests allows an opportunity for the examination of the data for consistency. This was determined both by the analysis of the actual differences in the values of the two series and by examination of the degree of correlation between them. Of the 52 patients on whom two basal tests were performed, the mean difference in circulation time was 1.9 seconds (Table II). The variation on either side of this mean in the majority of determinations was within 7.5 second. Despite this apparently wide intra-individual variation, there was fair consistency between the two series, the correlation coefficient being $+0.51$ (Table III).

A consideration of the basal and non-basal schizophrenic series on the same day revealed a decrease of the mean blood velocity time of 4.5 seconds in the afternoon. In the majority of cases the difference fell within 9.5 seconds on either side of this point. In one-third of the patients the non-basal time was increased, a tendency somewhat contrary to what one would ordinarily expect. Between these two series there was little consistency as was evidenced by their extremely low correlation coefficient of $+0.15$. Apparently the variation in the circulatory mechanisms of the schizophrenic is so great as to render impossible a prediction of the circulation time from a previous single determination, except when conditions are held rigidly constant, and even then the consistency is not marked.

TABLE II. CONSTANTS OF DISTRIBUTIONS OF DIFFERENCES BETWEEN BASAL AND NON-BASAL SERIES OF PATIENTS AND NORMAL SUBJECTS

	N.	Min.	Max.	Range	Mean	Standard deviation
2nd basal-1st basal (patients)	52	-16.1	27.0	43.1	$+1.9 \pm 1.0$	7.5 ± 0.7
2nd basal-2nd non-basal (patients) . . .	45	-12.8	36.3	49.1	$+4.5 \pm 1.4$	9.5 ± 1.0
Basal-non-basal (normal subjects)	23	- 7.0	9.3	16.3	$+0.8 \pm 1.0$	4.6 ± 0.7

TABLE III. SELF-CORRELATION

Circulation time	1st series (basal)	2nd series (basal)	2nd series (non-basal)	Normals (non-basal)
1st series (basal)		$+.51 \pm 10$	$-.08 \pm .15$	
2nd series (basal)			$+.15 \pm .15$	
Normal subjects (basal)				$+.73 \pm .10$

In the control subjects the mean difference between the basal and non-basal determinations was only 0.8 seconds, with the bulk of the results falling within 4.6 seconds on either side. The variability of the normals between the basal and non-basal scores is thus much smaller than that of the patients. This negligible change in the mean value was due to the fact in the afternoon as many control subjects exhibited a slower circulation time as showed a more rapid rate. It would seem, then, that the minimum level of this physiological process does not necessarily occur under basal conditions.

Between the basal and non-basal series in the normal subjects the correlation coefficient was $+.73$, a value markedly higher than that found in the schizophrenics and indicative of a significantly greater degree of consistency. The similarity of mean values and the relatively high correlation between the two series would seem evidence of an internal stability of the normal mechanism, somewhat lacking in the schizophrenic organism. In view of the small size of the series, however, such a conclusion should be set forth only with reservations.

An analysis of the relationship between many physiological variables and the arm-to-carotid circulation time was made in order to determine, if possible, the factors having an influence on this aspect of the vascular mechanisms. The results are tabulated in Table IV.

In general, the blood velocity seems to correlate with few other processes. It is surprisingly independent of the blood pressure obtained at the time of the test. The pulse rate seems to play a more important role, exhibiting with the circulation time a fair degree of negative correlation. Between the metabolic rate and the circulation time there was very slight association. In the patients this lack of relationship might be explained on the basis of the interval of time elapsing between the two series of tests (six months) and to the known variability of the oxygen consumption rate in this psychosis.³ In the control subjects, in whom the basal metabolic rate had been determined within a week of the circulation time, the degree of correlation was still quite small, though its negativity was in the expected direction according to the findings of Blumgart, Gargill, and Gilligan.⁸

TABLE IV. CORRELATIONS OF CIRCULATION TIME VS. OTHER VARIABLES

	Patients			Normal Subjects	
	1st series (basal)	2nd series (basal)	2nd series (non-basal)	(basal)	(non-basal)
Systolic	-.15±.11	-.08±.14	-.26±.14	-.29±.18	-.30±.19
Diastolic	-.03±.12	-.13±.14	-.09±.15	+.03±.20	+.27±.19
Pulse rate	-.35±.10	-.47±.11	-.52±.11	-.64±.11	-.07±.21
B. M. R.	-.03±.14			-.25±.20	
Height	-.01±.13			+.06±.20	
Weight	-.07±.12			-.10±.19	
Age	+.23±.11			-.06±.20	
Cal. per 24 hours....	-.11±.15			-.18±.20	

No correlation was obtained with age, height, weight, surface area, blood gases, or the olecranon-to-spine distance as a measure of the strictly venous pathway. No apparent relationship was found with the length of hospitalization of the patients, with the subtypes of schizophrenia, or with their degree of adjustment.⁹

DISCUSSION

The slowing of the circulation time in the schizophrenic patients may be regarded as another aspect of the depression of physiological activity noted so frequently in this psychosis. There is, apparently, no sharp demarcation between the normal and the schizo-

phrenic individual in this characteristic. The overlapping of the distributions is so great as to make it of little value as a diagnostic feature in the individual case. The peripheral stasis which it implies is a probable explanation for the low venous oxygen content² and cyanosis not infrequently found in this disease. Its relationship to the causation or maintenance of the psychosis, is, of course, as yet totally uncertain, but it may be regarded as another link in the chain of evidence for the operation of an organic process in schizophrenia.

In regard to the consistency of the determinations between the basal and non-basal normal series, the variation in the majority of cases has been within 4.6 seconds. In the patients the individual variation on the same series of tests extended to 9.5 seconds in two-thirds of the cases. In this higher value is exemplified one of the outstanding characteristics of schizophrenic physiology, an increased intra-individual variability, a tendency toward wide fluctuations, not necessarily accompanied by a displacement of the level of a physiological activity, nor by unusual variability among individuals.

SUMMARY

An investigation was made of the arm-to-carotid circulation time in 26 normal subjects and 73 male schizophrenic patients, free from organic disease. In the patients under basal conditions, the mean circulation time was 25.6 seconds. In a second series of 52 of the same patients, four months later, the mean basal circulation time was 27.9 seconds. In 45 of these a third series of tests were made on the afternoon of the same day; in these the mean arm-to-carotid time was significantly decreased to 23.0 seconds.

In the normal individuals the mean basal circulation time was 21.9 seconds, a significantly faster rate of blood flow than was found in the second and more reliable of the schizophrenic series. Under non-basal conditions the mean circulation time showed a practically identical value of 21.4 seconds.

In both the schizophrenic and normal subjects, in the afternoon series, the pulse rate and systolic blood pressure increased. While in the patients the circulation time showed a decrease, in the con-

trols no change occurred. This consistency in the normals was attributed to the operation of adjustment mechanisms, the efficiency of which was impaired in schizophrenia so that mechanical influences predominated.

In the patients the correlation coefficient between the two basal series was $+.51$ and between the basal and non-basal series $+.15$, the higher value signifying that greater consistency was obtained under similar basal conditions. In the normals the correlation coefficient between the basal and non-basal series was $+.73$, a value significantly higher than that of the schizophrenics, and which, coupled with the similarity of the mean values in the circulation time, seemed indicative of greater individual stability.

While the variation in circulation time among individuals was no greater in the patients than in the normals, within individuals it was twice as marked, the usual variation between the basal and the non-basal values being as great as 4.6 seconds in the control subjects and 9.3 seconds in the psychotics.

There was a fair negative correlation between the circulation time and the pulse rate. The basal metabolic rate had but little effect upon the circulation time in the normal subjects, and the systolic blood pressure none. No correlation was obtained between the circulation time and age, height, weight, surface area, period of hospitalization, degree of adjustment, or subclass of schizophrenia.

CONCLUSION

Schizophrenia is characterized by an abnormal slowing of the circulation time, and by an abnormally high intra-individual variability in the rate of blood flow.

I wish to express my thanks to Doctors Robb and Weiss for the loan of their manuscript previous to its publication.

BIBLIOGRAPHY

1. Freeman, H., Hoskins, R. G., and Sleeper, F. H.: The blood pressure in schizophrenia. *Arch. Neurol. and Psychiat.* 27: 333. (Feb.) 1932.
2. Looney, J. M., and Freeman, H.: Data to be published.
3. Hoskins, R. G., and Sleeper, F. H.: Organic functions in schizophrenia. *Arch. Neurol. and Psychiat.* 30: 123. (July) 1933.

4. Robb, G. P., and Weiss, S.: A method for the measurement of the velocity of the pulmonary and peripheral venous blood flow in man. *Am. Heart Journ.* 8: 650. (June) 1933.
5. Freeman, H.: The effect of "habituation" on blood pressure in schizophrenia. *Arch. Neurol. and Psychiat.* 29: 139. (Jan.) 1933.
6. Hoskins, R. G., and Walsh, Anna I.: Oxygen consumption ("basal metabolic rate") in schizophrenia. II. Distribution in 214 cases. *Arch. Neurol. and Psychiat.* 28: 1346. (Dec.) 1932.
7. Cannon, W. B.: Organization for physiological homeostasis. *Physiol. Rev.* 9: 399. (July) 1929.
8. Blumgart, H. L., Gargill, S. L., and Gilligan, D. R.: Studies on the velocity of blood flow. XIV. The circulation in myxedema with a comparison of blood flow in myxedema and thyrotoxicosis. *J. Clin. Invest.* 9: 91. 1930.
9. Erickson, M., and Hoskins, R. G.: Grading of patients in mental hospitals as a therapeutic measure. *Am. Journ. Psychiat.* 11: 103. (July) 1931.

COEXISTENCE OF PSYCHOSES OF A DIFFERENT TYPE IN THE SAME INDIVIDUAL*

BY ALFRED GORDON, M. D.,
OF PHILADELPHIA

Association of psychoses or succession of different forms of psychotic disturbances in the same individual are not frequent; nevertheless they are occasionally met with. Recognition of the possibility of such a complication and analytical appraisal of the various manifestations will lead, I believe, to the view that the coexistence is not a matter of an incidental occurrence or mere coincidence, but that there is a significant inter-relationship between the various phenomena. One of such examples is presented here with reference to general paralysis.

Occurrence of catatonic manifestations in the course of paretic dementia has been observed by a few authors. Examples can be found in the works of Knecht and Nacke (*Allg. Ztschr. f. Psych.*, 1886), Dupré, (in *Maladies Mentales de Dupré*, p. 924), Séglas (*Nouv. Iconogr. de la Salpêtr.*, 1907), Anthéaume (*Encéphale*, 1920). In all these records symptoms of dementia præcox were in evidence only for brief periods, either before the full development of the clinical picture of paresis, or in alternation with the mental symptoms of this disease. In Bleuler's striking case schizophrenia preceded paresis. Claude (*J. de Neurologie*, 1927, p. 742) reports one case in which symptoms of paresis were present during a period of two years, but in the third year the clinical picture was that of catatonic dementia. In another case of his series the initial symptoms were those of typical paresis with positive Wassermann reaction, but later the clinical picture presented a typical hebephreno-catatonic appearance. In still another case the comportment of the patient was that of a schizophrenic but his cerebrospinal fluid was that of a typical paretic. Gerstmann in his book entitled "*Die Malariabehandlung der progressiven Paralyse*, p. 155," speaks of transformation of paresis after an improvement under malarial treatment into schizophrenia of paranoid type. He remarks, however, with emphasis that in his opinion it was not the malarial febrile state that produced the schizophrenia because in

*Read at the February, 1934, meeting of the Philadelphia Psychiatric Society.

all the other cases similarly treated he failed to observe such a transformation, but in that case the patient had already exhibited some symptoms of dementia paranoides before the malaria treatment was instituted. He also speaks of cases of paresis in which spontaneous remissions occurred (without treatment) and they all terminated with dementia præcox. Finally he mentions several instances of paresis treated with tuberculin and sodium nucleinate which also terminated with the clinical pictures of dementia præcox.

A careful reading of the life histories of the cases described by the above mentioned authors will reveal, as in Gerstman's and Bleuler's cases, the fact that a large number of those individuals presented inveterate constitutional tendencies characteristic of the schizoid type and that some of them presented at different periods of their life phenomena characteristic of dementia præcox before the onset of the incidental paretic dementia. These cases, as well as the one about to be described, are not examples of a mere coincidence of two psychoses in the same individual, but appears to be in close relationship with one another: The pathological lesion of one served a point of departure for the full development of the other, and the latter possessed a background subject by its very nature to easy psychological dissociations and therefore to a splitting of personality, so characteristic of schizophrenia as an affective disease-process. As to the *modus operandi* in the formation of the characteristic autism, introversion, withdrawing from and loss of rapport with reality; deadening of the affective energies, all of which were conspicuous in our patient—this presents a different chapter of the problem under discussion and belongs to the psycho-analytic domain. In this contribution the intention is solely to record a reaction type of personality dependent upon a predominantly schizoid constitution.

C. N., male, 42 years old, had a syphilitic infection at the age of 22. His Wassermann reaction at that time and for some years after was positive for blood and spinal fluid. At 35 he commenced to suffer from headache. A neurological examination at that time revealed greatly diminished patellar reflexes, ankle-clonus on one side, mild Romberg sign, some paresthesia in the lower extremities,

imperative micturition, unequal pupils (R. L.) and sluggish light reaction of the right pupil. These symptoms together with the headache and two plus Wassermann reaction of the spinal fluid led to the diagnosis of cerebro-spinal lues. A course of vigorous and continuous treatment with neoarsphenamin, mercury and iodids improved his condition greatly. He changed residence from Philadelphia to Cleveland. For four years he had no treatment. The family returned to Philadelphia. A reexamination at 39 presented the following symptoms: Headache, fine tremor of the hands, tongue and lips, marked dysarthria, abolition of the right patellar reflex and diminution of this reflex on the left side; unequal pupils with distinct Argyll-Robertson pupils, paresis of the left external rectus muscle. The mental symptoms were striking, namely considerable impairment of memory, of self-criticism, loss of the sense of propriety, marked euphoria with paroxysms of agitation, auditory hallucinations, tendency to excesses in eating, drinking, smoking and in sexual attempts. The cerebro-spinal fluid gave a positive Wassermann reaction and a typical colloidal gold curve (5554431211). The diagnosis of parietic dementia was definite. A vigorous treatment with frequent injections of neoarsphenamine and mercurials, absolute rest in bed, sedative for agitation and insomnia, improved the mental condition, also his general health. The tremor of the hands and lips, the parietic dysarthria and even the light reflex of the pupils, the memory and his general deportment, showed a decided amelioration in the former parietic picture. A remission was evident. It was maintained during a period of three months. It was then observed that the patient was developing gradually a mental state totally different from the previous one. He was becoming apathetic, indifferent, inattentive to subjects in which he took considerable interest during the remission period. He was observed talking to himself, making automatic movements, repeating them numberless times. He would remain in his chair for hours, would not speak voluntarily and would not answer questions. He was found on several occasions in a catatonic attitude: would stare in one direction with one hand raised for three or four hours at the time. He made stereotyped gestures and grimaces. While he always showed, and even during

his paretic phase, attachment and affection for his married brother with whom he lived, presently he became totally indifferent to him. His brother was a great sufferer due to a duodenal ulcer; at times he had intense abdominal pain and would make outcries during the paroxysms. Our patient was entirely oblivious and would remain in his chair or bed without offering any aid. He became unclean, would urinate and defecate in bed.

The patient therefore presented a striking transformation of a typical paretic picture into that of dementia præcox of the catatonic type.

A question arises as to the relationship of paretic dementia to dementia præcox. Was the first affection a real paresis and was the second affection a genuine dementia præcox case? The serological findings in the first are undoubtedly the decisive diagnostic factors besides the characteristic somatic and mental manifestations of the classical paresis. In the second case we find all typical reactions in the mental and affective spheres to justify the diagnosis of the catatonic form of schizophrenia. One can therefore admit that our patient began his psychotic state with undoubted paresis and terminated with catatonia. At the same time we cannot ignore the fact that the transformation of one into the other dates from the time when a decided remission took place in the first affection. The logical inference in such an occurrence is that the patient was fundamentally a "latent schizophrenic" (Bleuler) in whom the lesional factors of paresis produced such psychic changes as to dissociate or split the psychological groupings characteristic of such individuals. The syphilitic meningoencephalitic characteristics of paresis may be perfectly analogous to other infectious processes in the course of which we observe psychopathic disorders, such as typhoid fever, epidemic encephalitis, pneumonia and some other similar conditions. Such psychotic complications most frequently occur in individuals who constitutionally present some anomalies or psychopathic traits. The "latent schizophrenia" on which Bleuler lays so much stress is an exceedingly valuable point of view and in the case under consideration finds a very strong confirmation.

Indeed, the life-history of our patient shows with striking evi-

dence a schizoid make-up. As a child, he was very shy, retired, preferred to spend his time with the parents than with children even of his own age. He was easily frightened, dreaded animals, feared to be by himself. In school he seldom spoke to his mates. During recess hours he would remain in the classroom by himself and resisted any interference. He was a dreamer, would find great satisfaction in being by himself. Even at home he seldom spoke to his sisters and brothers. He never came to the parents for advice. Was interested only in himself. Often he would ask to serve his meals in his own room. His studies in school were those of the average boy. He had, however, difficulty in memorizing. He could not advance further than third year of high school. He secured work as a clerk in a department store. There again he attended strictly to what he was told to do but could not associate with, or form friendships among employees. He always kept himself at a distance and absorbed himself in his own thoughts. He masturbated excessively. He had outbursts of excitement before each act of masturbation. At times he was seen making automatic gestures and talking to himself. He was particularly fond of his mother in preference to any one else in the family. He was also extremely jealous of his father whom he later detested. At times he would threaten his mother when she would speak affectionately of his father or of other members of the family. When his mother died, a woman of 35 came into his life. She was employed in his place of work. He became attached to her because she apparently substituted for his mother. Unfortunately, she was a woman with a disreputable past and while cohabitating with her he contracted syphilis. He was advised by his physician to abandon the woman. His seclusion, his abandonment to himself, his avoidance of association and all other traits described, remained unaltered and as the years went on they became more accentuated. Nevertheless no psychotic disturbances were observed by his father or other relatives until the period of his life when he developed parietic dementia, described above.

Upon analysis of the personality characteristics of this individual, we find here all the elements of a schizoid constitution. Isolation, interiorization, so-to-speak, are the chief features which could

be seen in all his activities. When such a type is attacked by an infectious process, such as lues, the latter will find a ready soil for disorganization or dissociation of the personality. This process will split up all the component elements and render the individual unfit to remain in contact with reality. In our case the parietic phenomena were developing on a schizoid background and as soon as the anatomical lesions were therapeutically attacked and improvement was obtained in the form of a remission, the psychological dissociation became profound and its phenomena more and more distinct. The splitting of the personality was eventually complete and total, and the patient entered finally into the schizophrenic state which ordinarily is the ultimate termination in the life of schizoid individuals. The most elementary tendencies of his personality were no more under the control of consciousness and their activity became similar to those of dreams during sleep.

Our patient therefore presents an example of two psychoses, one of which produced such profound anatomo-pathological changes as to become a point of departure for a process of dissociation of personality-traits of innate schizoid type and bring to the surface a latent schizophrenia. Integrated whole personalities which daily meet and react to stimuli of the surrounding world, respond in different ways to the same stimuli, in accordance with their unconscious needs. The latter vary with the specific types of personalities. In our case it was evident that the fundamental principles of an organic etiology could be held responsible for the psychotic behavior. The development of the dissociative projection syndrome could not be considered here as incidental or unexpected. Our patient had to react in some way to the insult of a pathological element which impinged upon his inherent personality-traits and his psychobiological behavior was that of a schizoid reaction type of defense mechanism.

THE MENTAL TREATMENT OF STAMMERING*

BY L. PIERCE CLARK, M. D.,†

NEW YORK

Although many of the constructive methods of speech-training are very helpful, it has become increasingly apparent that a deeper understanding and a more thorough-going approach are necessary for the treatment of stammering. Investigators have long recognized that organic factors do not regularly play a part, that the difficulty lies in the imperfect functioning of a mechanism which is inherently sound. Education for the proper, coordinated movements of speech and a correction of faulty habits seemed to bring some improvement. But behind the continued stammering there appeared to be an involuntary mental or emotional attitude which blocked the natural achievement of smooth speech. There is now rather general agreement that this neurotic factor is the real basis of the disorder; that stammering is merely the symptom of a disease which involves the whole personality.

In studying the emotional make-up of such patients, many observers found certain general trends which seem typical. Quite apart from his symptom, the stammerer is the sort of person who feels that the ordinary demands and responsibilities of life are too severe. Consciously or unconsciously there is a sense of inadequacy, of helplessness and dread. Characteristically he tends to "go around" difficulties rather than to face them. His everyday attitudes show a lack of steady self-reliance and an excessive inner needfulness. To state it in psycho-analytic terms, the ego or central organizing part of the personality appears weak and incompletely developed.

This immature and fearful quality in the ego is apparently hidden and compensated for by other characteristic trends. Frequently there is an emotional aloofness which seems to shelter the individual in a feeling of self-sufficiency. Rather than risk the difficulties of real participation in the outer world, he is inclined to have a sense of magic omnipotence. His libido does not flow freely into objective interests but remains to give assuring protec-

*Read before the New York Psychiatric Society, November 1, 1933.

†Dr. Clark died December 3, 1933.

tion to the ego. As a rule, he privately wishes to occupy the center of the stage, to be the leader and the superior authority. But inwardly he expects this "by divine right" rather than through consistent effort. Impulsively he credits himself with powers which he does not possess or which do not become translated into actual performance. Frustrated in real life, he often turns excessively to day-dreaming.

Such a tendency towards emotional isolation can be understood as a continuation of the primary narcissism, that earliest infantile stage before libido begins to flow towards outer objects. Although trends of primary narcissism are present in all of us, the typical stammerer seems to maintain them in a more rigid and characteristic form. More of his libido remains bound to the ego, apart from the external world.

Another common observation is that the stammerer appears to need a return for whatever emotional energy he does project into his environment. Either he looks for an abundant encouragement and support beforehand, or he longs for excessive applause and feelings of success afterwards. Frequently it may seem as though he were actually giving himself towards an object but a closer scrutiny shows that the aim is still to inflate the ego's sense of worth. Like loving only in order to receive more love, the relationship is mainly a narcissistic one. We speak of it as secondary narcissism, however, because it has advanced beyond the magic stage and involves some "giving out" of libido in the effort to gain self-aggrandizement.

It is now recognized that these trends of excessive narcissistic need in the stammerer tend to resist a free participation in the world-as-it-is. Speech, on the other hand, seems to require an urge towards social contact. We agree with other investigators, that this conflict between the wish to speak and the narcissistic tendency to reject it has much to do with the stammerer's jerky, "stop-and-go" form of utterance. Nevertheless, to go more deeply into the dynamic phases of his difficulty, we must note that he has trouble mainly with certain kinds of sounds. He cannot finish these sounds and go on to the next ones in his speech. He lingers over them, repeats them, and rhythmically dwells on them; but he is unable

to complete them and continue. His neurosis, therefore, might better be described as a spontaneous preoccupation with certain special sounds, to the detriment of the more general purposes of speech.

Investigation has shown what these particularly difficult utterances are, and it has been further noted that they require the same muscular movements as are used in the sucking and biting phases of nursing. Furthermore the stammerer breaths excitedly, his heart beats rapidly, he perspires freely, and there comes a relaxation at the end—as if he were experiencing a highly erotic, although disguised, form of libidinal release. The picture suggests a continued emphasis on the oral-erotic pleasures of speaking, and if this is the case we should infer that the stammerer has remained fixated at this stage of emotional development.

Corroboration of this is to be found in further observations. The stammerer seems to attach a heightened significance to speech. The urge to talk is greatly exaggerated, and many individuals are known to experience a feeling of “overflowing” when they have a chance to speak at length. Some tend not only to use speech as an erotic attack upon the outer world but also refer to it as an actual activity of overpowering or destroying the object. Others have described speech as a bodily evacuation, and even as a means for impregnating another person. In short, the tendency is to make the oral zone primary and dominant; the emotional significance usually attributed to other parts of the body is displaced to the speech-organs. Again, many stammerers find great satisfaction in the oral-erotic pleasures of eating. Thumb-sucking is usually continued to a late age and often resorted to in adulthood. Kissing regularly becomes of great erotic importance and its oral satisfactions elaborated in special forms of indulgence. These tendencies, while unimportant when viewed separately, are characteristic of the stammerer. When several of them are combined in one individual, they give indication of an excessive oral fixation.

Perhaps the strongest evidence, however, is to be found in the stammerer's character-formation. Psychoanalysis has been able to formulate in other connections the special traits of personality which arise out of an oral fixation. These are observed in the

stammerer's make-up, not always as the obvious trend but regularly as a dominant element in his total personality.

The earliest oral libido is concerned with sucking activities, and the attitudes arising from it are those of eager receptivity and blissful assurance towards an environment which seems to give an abundance of love and sustenance. Just as he once felt certain that mother's breast would eventually come to him, so the individual continues hopeful and optimistic towards the outer world. In manner he shows that, for him, to which for something in equivalent to obtaining it; to plan an undertaking is virtually the same as carrying it through. With a child's expectancy that mother's breast will always flow, he inwardly feels that success will materialize with little effort on his part.

Frequently, about the stammerer there is a gentle niceness which suggests the soft, pliable nature of the nursing; yet a childish petulance is indicated in the stormy tantrums which follow the frustration of his needs. Envy and jealousy, such as the infant might feel for those who share mother's love, are often noted. Occasionally there is anxiety about the possible failure to receive sustenance from the everyday world; but a more characteristic inclination is to choose occupations where a regularly flowing income is guaranteed, regardless of future advancement.

When happily combined with other tendencies, a wishful optimism may become a sustaining spirit of self-confidence. The stammerer's hopeful expectancy frequently serves to keep him open to new enterprises. His attitudes of "drinking in" may also make him freely receptive to new ideas. Carefree moods often make for a genial friendliness, and there may result a bright sociability which lends charm and grace to his manner. Nor is it uncommon to see in one of this type an abundant generosity, born out of the identification with mother in her lavishness of free giving. As a rule, the stammerer is much more concerned with processes of receiving than with efforts to keep. He leans more fully to an "easy come, easy go" attitude than to a rigidity of preserving what he has.

Many individuals of the oral type are known for the relentless persistence with which they strive to get what they wish. It is a

trait often seen in the stammerer. In its crude form it amounts to pestering other people for special favors. When combined with more mature tendencies, however, it results in a valuable quality of perseverance. Yet again, when trends of primary narcissism have remained strong, the individual shows a tendency to make a quick "oral snatch" at gratification, only to sink back readily into an unfriendly aloofness. His desire to have his own way lapses quickly into a sullen withdrawal whenever his demands are not promptly met. The tendency to "draw on" the environment may still be there, but it has been modified in many cases by a merging with narcissistic traits.

Other differences in the character-formation of stammerers arise from variations within the oral tendencies themselves. The second phase of nursing consists of a biting aggressiveness which psychoanalysis pictures as a fusion of erotic and destructive impulses toward the object. If the hostile and the tender forces have not remained merged together, there may be a tendency to alternate between the two. Many stammerers are inclined to be ambivalent and to swing easily from one side to the other in their opinions or attitudes. Frequently, while there may not be outspoken acts of cruelty and bitterness, the influence of the oral-sadistic stage is to be observed in the irritable impatience and sharp insistence with which such individuals make their demands on the outer world. Nevertheless, this pattern at times takes the form of an aggressive acquisitiveness which contributes healthily to the vigor in meeting the outer world. It is often socialized into a keenness of investigation and scientific research. High standards of intellectual achievement are not uncommon among people of this type, when the oral-sadistic impulse to seek knowledge is combined with the further ability to absorb it and give it out again into real uses.

Such, at least, are some of the oral traits observed in the stammerer. They vary and are put to many different uses, according to the degree of merging with other trends. Yet the common, fundamental factor as seen in all speech-neurotics is the general tendency in these directions. We feel justified in citing it as a rather conclusive indication that the stammerer's emotional development is characteristically fixated at the oral level.

Obviously, the oral-erotic pleasure in uttering certain sounds must give a tremendous impetus to the initial development of speech. But eventually this purely erotic phase must be subordinated to the more social aims of verbal contact with the outer world. If oral-erotic tendencies remain excessive, however, the fixation may seriously interfere with speech. The libidinal significance of speaking may attain undue importance compared to the ego-purposes. Speech may remain over-erotized rather than fully socialized.

It is these conflicting claims upon the speech-organs which we formulate as the basis of the stammerer's neurosis. He not only seems to maintain a larger amount of oral libido than the average individual, but he invests a bigger share of it in the mouth-movements of speech. If a greater quantity of his impulsive energy had developed to more mature levels of striving, they might modify the infantile urges into trends more available for socialized use. If the ego were capable of guiding the oral impulses toward acceptable forms of release, there need be no neurosis. But the dynamic urges remain strongly fixated and, as in other neuroses, the ego's chief means for dealing with them becomes that of repression. If this use of pressure and the resultant inner tension could be sustained, there still might be no disturbing symptoms. But the powerful oral impulses continue to break through the barrier and to gain expression in disguised form.

The mouth, tongue, and lips are constantly overcharged with oral libido. Speaking has the combined task of serving a social purpose and abreacting this excessive erotic energy. Through the symptoms of stammering, a compromise is reached between purposeful utterance and the impulse to linger on the unconscious pleasures associated with certain enunciations. Smooth speech is often impossible because the organs are flooded with erotism. Discharge is achieved through the compulsive repetition of the same oral movements; or, in other words, through the repeating of certain syllables, letters, and sounds.

Nevertheless, the stammerer remains unaware of the erotic element in his symptom. Usually his only recognition is of difficulty and anxiety. This fear, in turn, leads in many ways to an increase

in his stammering. One feeling, often described as a dread of speaking, is seen psychoanalytically to be the ego's anxiety lest the repressed, oral-erotic impulses should burst beyond control. Another phase of fear arises upon being required to take a responsible, independent stand before other people. The stammerer is afraid of losing the friendly approval and support which is so necessary for his ego's sense of completeness. His unconscious groping for a soothing agent then takes the form of a heightened rush of oral libido which floods the process of speech.

Often the deepest source of fear is the stammerer's own inner hostility towards the external world. The bitter hatred which is felt for all objects who wean him from oral and narcissistic satisfactions is constantly arising and must be repressed. Yet we know that, in the unconscious, to wish is equivalent to actually doing; and strong hostile thoughts thus lead readily to a dread of what the outer objects will do to him by way of reprisal. "I feel like destroying them, therefore they wish to destroy me," is a mechanism by which unconscious sadism is converted into fear. Very frequently it is found to be one of the major conflicts in the stammerer's emotional life.

Other levels of difficulty also contribute to the total clinical picture and of course cannot be neglected in the individual case. We believe, however, that the fundamental source of the neurosis has not been touched until the deeper fixation at oral and narcissistic levels has been dealt with. The stammerer has failed to socialize or sublimate his oral-erotic and oral-sadistic tendencies. They break through his efforts at repression and are shown both in his general attitudes and in the symptoms of his speech-disorder. Therapy has the task of loosening the fixations and making more energy available for the usual forms of acceptable release.

The natural temptation might be to advance this aim by giving direct attention to the fixations and conflicts found in the individual. Often he is given kindly advice and instruction towards a sounder form of projection into the outer world. Many methods consist of friendly talks with the stammerer, a benevolent indication of his errors, and a sympathetic guidance into better ways of living. By being really human and understanding, the therapist

hopes to influence the patient for a courageous mastery of his inner conflicts.

The weakness in the approach, we feel, is that it fails to recognize the dynamic basis and the economic necessity for the stammerer's neurosis. With certain fixations in emotional development, the satisfactory discharge of impulses into reality is blocked. Neurotic attitudes and symptom-formation act as much-needed outlets for his impounded energy. Since it is due more to lack of development and capacity than to ignorance or conscious unwillingness, the real difficulty apparently cannot be influenced by an effort of the will or by sincere attempts to follow reasonable advice. Rather, we believe that something must be done to allow a spontaneous resumption of development and an internally evolved means for socially acceptable release.

Methods which depend on active instruction would obviously leave the individual's emotional *needs* unaltered; the only modifying influence would be that of increased repression inspired by the instructor. It must be granted that in some cases this serves to relieve the symptom. Relying on the support of a friendly adviser, the stammerer sometimes succeeds in remodeling his attitudes and managing his life more happily. More often the new drive into reality seems to weaken as the individual loses the immediate backing of his instructor and must sustain himself independently. For a period he may feel strengthened and encouraged by the mental picture of his supporter, but eventually he tends to resume his earlier difficulties. In short, the emotional attachment to the physician, which is such a powerful aid in all treatments, has not been recognized as another form of conflict necessary to be worked through and resolved. The relationship, called a "transference," sustains the patient for some time but is inclined to leave him constantly needful of guidance and new dependencies. Moreover, it tends mainly to require a continued repression of his own spontaneous impulses. We hold that this has the effect of impounding inner tension, which leads either to a later recurrence of the stammering symptom or to the development of other neurotic difficulties.

More helpful, it seems, would be a therapy which does not over-

✓whelm the individual with a revelation of his problems nor burden the ego with increased demands for repression. It would allow the patient to "come upon" his own gradual recognition of the emotional fixations and conflicts. The major goal must be to re-invoke development towards a higher general level of impulsive striving. Not only must the individual himself initiate the steps which lead to self-understanding and self-reconstruction, but the new spontaneous trends of feeling must be natural for him and not tintured with dependence on the therapeutic attitudes.

It is our belief that these aims can be farthest advanced by the methods of psychoanalysis. Nevertheless, the typical oral attitudes of the stammerer make him long for a "taking in" of a ready-made solution of his problems rather than an extended working through to a new position of his own. His narcissistic tendencies place a barrier against free participation in the relationship with the analyst. Unconsciously he resists that formation of the transference which is so necessary; or, having made a dependent attachment, he may swing quickly away from it when required to give more of himself into the procedure. Some modification in the usual psychoanalytic technique is apparently needed, to win over the stammerer's narcissism and gain his full impulsive cooperation. This modified approach, available for all narcissistic conditions, we formulate somewhat as follows.

✓ First, the analyst gives libido to his narcissistic patient. This consists of a direct, active interest in the other person as an engaging, understandable human being. It is a process wherein the analyst "goes toward" the patient, encouraging him and responding to his wishes yet expecting nothing in return. No attempt is made to point out the inner source of difficulties, and neurotic attitudes are not questioned; there is simply a friendly support for the ego as a whole. All that is asked is that the individual mention freely any thoughts that come to mind as he lies relaxed on the analytic couch. Often he is told, "This hour is all yours, for your purposes, and for you to talk about anything you wish." The analyst lends himself fully to listening; and he understands the material, not for purposes of interpretation but with sympathy and assurance. He devotes a sincere interest to anything that concerns

the other, whether it be painful troubles or more general topics for which the patient shows enthusiasm.

This relationship, often maintained over an extended period, is meant only to establish a mutuality of feeling with the narcissist. Like the gentle, understanding, all-giving mother, the analyst inspires a relaxed attitude of confiding trust. The patient's need for love and assurance is answered with a fullness that tends to reduce the aloofness of his primary narcissism. He may accept this friend within the circle of his own personality as a supportive part of his own ego. What they talk about may be unimportant, as far as therapy is concerned, but it fosters freedom and rapport. Indeed, the analyst often initiates the sorts of subjects for which the patient has interest. He may have to do most of the talking, but he talks in a way which encourages the other to join in. Usually some form of conversation comes from the stammerer, and the analyst may contribute freely to keep this going.

✓ More and more, as he begins to see in the therapist an image of the "perfect parent," the patient gains in naturalness and spontaneity. His own experiences form a greater share of the subject-matter, and he shows a readiness to give more into the relationship. In other words, the trend of secondary narcissism comes to the fore; he is willing to project energy in order to receive a libidinal reward from the other person. His unconscious attitude towards the analyst has been modified, and the latter is no longer felt as completely attached to the ego. He is a separate, although sympathetic, personality towards whom the stammerer directs libido in order to gain narcissistic satisfaction. - ✓

Wherever personal episodes are recounted, the analyst may now cease to be satisfied with general statements and brief summaries; he inquires further into subjective feelings. The flow of thoughts may be stimulated in this way, but such questions are kept at a minimum. Obviously something more is being asked of the patient; the major quality of effortless gratification is absent. Yet the situation is still so utterly narcissistic that it rarely seems a task. The subject at hand is always something initiated by the patient; he is merely requested to re-experience more fully his affect concerning it. Later, after material of this sort has come freely, he

may be asked, "Have you ever felt this way at any other time?"

The purpose here is to gain recollections of forgotten ideas and attitudes, to widen the field of memory and to allow a grouping together of similar unconscious impulses. The material may show a characteristic tendency running through present-day as well as past reactions or feelings. Frequently the attitudes and emotional disturbances of today may be seen to be repetitions and elaborations of earlier ones, particularly those referring to stages of development at which the patient has remained fixated. If there seems to be a genuine spontaneity in the associations which are given, the analyst will ultimately wonder what the general trend signifies to the patient. Libido is now given to the specific process of "understanding oneself," and the analyst continues to lend assuring support as the ego becomes gradually aware of the repressed or disguised impulses. It is to be hoped that the patient himself will formulate a genuine insight, not directly into the causes of his stammering but into the unconscious tendencies and needs which lie behind his whole emotional pattern. Occasionally the analyst may offer a tentative interpretation, but only to allow the patient to test it freely and come to his own inner decision about it.

Indeed, once the narcissistic transference begins to contain a slight degree of object-libido going into the process, the method is very similar to that of ordinary analysis. The main difference is that a longer period is required and frequently a return to the earlier, libido-giving phases of the transference is temporarily necessary. As usual, however, free associations form the basis from which self-understanding is attained; dreams and other symbolic material are worked over; unconscious resistance is exposed and analyzed; and the transference-relationship itself becomes an important subject for analysis. The emotional attachment to the analyst invariably contains ego tendencies and impulsive trends which are typical of the individual. He may work through them in gaining insight into the transference. The Oedipus complex, although perhaps colored by trends from the pre-Oedipus stages, is here one of the main conflicts as it is in the better known neuroses.

Several mechanisms are at work towards the therapeutic goal. As we have seen, the evolution of the transference itself inspires a developing trend from primary narcissism to secondary narcissism and finally to degrees of object-libido. This energy, flowing toward the analyst, is made available for wider projections toward objects in the outer world. Meanwhile, from the free "living through" of infantile cravings, there may come a satiation and a finishing off of the unfinished, early emotional levels. Most important of all, perhaps, is that the ego gains insight into the repressed instinctual urges. It becomes aware of these at a speed of its own choosing and with a gradually developing strength to face them. Through its analytic experiencing, supported by the analyst, the ego no longer fears the inner tendencies and may spontaneously find ways of dealing with them other than by repression. By resolving conflicts and modifying the sadistic hostility, there comes a more stable ability to meet the outer world and aggressively participate on a friendly basis.

All of these factors contribute to reducing the dynamic causes of the neurosis. We feel that usually more of the total emotional energy flows into trends of object-libido and the general level of impulsive striving gains a more mature development. Other observers have postulated that the amount of narcissistic and oral-erotic energy remains the same, but that, through the psychoanalytic experience, these urges become better merged with objective tendencies. In either case, a more consistent discharge of emotion is gained in sublimated and socialized activities. The economic necessity for a symptom-formation has been reduced.

Undoubtedly the more direct and superficial methods of treating stammering will continue to give various degree of real help to the sufferer. Nevertheless, where these fail and relapses occur, one can recognize that the fundamental neurosis must be cleared up. We believe that the outline given here offers a method not only for increasing our understanding of the disorder but for attaining a sounder degree of therapeutic success. Particularly where the neurosis is given early attention, where the mechanisms have not had years of elaboration and fixity within the ego, the prognosis would seem rather favorable for permanent relief. It is to be

hoped that psychoanalytic therapy will be more widely resorted to and tested in dealing with stammering. With increased experience and deeper understanding it seems destined to lead to an improved technique which can be satisfactorily applied to all functional speech-disorders.

ORGANIZATION OF PSYCHIATRIC CLINICS

BY NEIL D. BLACK, M. D.,

SENIOR ASSISTANT PHYSICIAN, MARCY STATE HOSPITAL, MARCY, N. Y.

Community work in mental hygiene was initiated in the New York State hospital system when, in 1906, Manhattan State Hospital made an arrangement with the State Charities Aid Association for the aftercare of parole cases by a social worker in the employ of the association. It was not until October, 1911, however, that the State authorized an after-care agent for Manhattan and Central Islip State Hospitals to carry on this work. During her first year, such agent supervised 180 cases on parole and made 44 visits on behalf of preventive cases.

In connection with this early preventive work, should be mentioned the establishment of the first out-patient clinic in 1909 by Dr. R. H. Hutchings, at the St. Lawrence State Hospital. It was not until 1912 that State hospital physicians were assigned to clinics for after-care and prophylaxis.

How the activities of the State hospital clinics have grown can best be illustrated by statistics of the Department of Mental Hygiene for the year ended June 30, 1932. They are as follows: Number of clinics 66, with 1,917 clinic sessions; total visits 26,868, of which 2,279 were first visits and 21,182 return visits. Of the visits 18,998 were made by parole patients, 1,328 by discharged patients and 9,493 by other persons seeking for themselves or others advice and treatment. From the community there were 4,463 cases in the first and return visit groups; these comprised 1,583 children under 16 years of age and 2,880 adults 16 years of age or over.

The main idea in the early development of out-patient departments in connection with the State hospitals arose out of the desire to more adequately supervise patients while on parole. Since these early beginnings, however, there has been a decided widening of clinic interests so that now the clinic is concerned also with social, psychiatric and preventive work together with education of the public regarding mental disease.

The establishment of a system of mental clinics by the State was

undoubtedly a step in the right direction. Before this time it was almost impossible for the State hospitals to render adequate service to the community. Standing apart, they were unable to make those contacts with the public which were so urgently needed in order to combat traditional prejudices and general lack of understanding of the psychiatric problem. The efforts made by the clinics to meet these needs are indicated by the growth and expansion that has taken place.

When considering the establishment of a mental clinic in a new community where work of this type has not previously been done, it is found that, as a rule, a large number of persons are already interested. State officials are usually quite well-informed, public health officers are no longer indifferent and social agencies are keenly alive to the needs of the community and see in the clinic a means by which many difficult problems that have been confronting them can be solved, or at least alleviated. In the solution, team work is required on the part of every professional group concerned, as individual effort, as a rule, is futile.

The efficiency and usefulness of a clinic will depend primarily on the interest of its director, his aptitude for clinic work and the training he has had in psychiatry and allied branches. He should, as far as possible, ingratiate himself with the community and establish firm contacts. He may at first incur a certain amount of resentment on the part of the local physicians. This is true particularly in rural districts and occurs because they have not learned, through long experience, the value of special clinics for selected cases, and therefore, feel a certain distrust of State medicine. However, if this point is kept clearly in mind and care is taken to see that all referred cases are returned to their own physicians, with the clinic recommendations, they will soon begin to feel that the clinic is a distinct asset, rather than as they had at first feared, a liability.

When the aims of the clinic are thoroughly understood it will be welcomed by the general practitioner as a haven to which he can send his so-called "neurotic" cases. This type he finds difficult to treat, for as a rule he does not understand the problem or the underlying mechanisms.

What is applicable to the local physicians is also, in a great measure, to the remainder of the community. The clinic physician is greatly facilitated in this community phase of his work by the aid of a competent social worker. True, her prime interest, as is also that of the physician, is to render aid to the patient but her field is somewhat different. It is her duty to help the patient, as far as possible, to adjust to his environment following the clinic physicians' recommendations. In this way she comes in contact not only with the family but with many lay organizations and can do much to establish the prestige of the clinic in the community.

The clinic can well be likened to a bridge which links up the hospital and the community. The hope of the clinic lies in the prevention of maladaptation, social readjustment, community supervision and early treatment. This clinic group should be looked upon as a more hopeful and promising one than the hospital group for the latter being more advanced in disease, are less responsive to treatment or rehabilitation. It might also be added that it is of great value to the physician and social worker to be in touch with cases of a different type from those presented in the institution.

The scope of the clinic consists in the education of the public to recognize the incipient stages of nervous and mental diseases and to seek expert advice, so that, if possible, a serious issue may be prevented.

When we consider that approximately only 7 per cent of the total number of clinics outside New York City in 1929 were under other direction than the Department of Mental Hygiene, it appears that the State with 93 per cent is leading the way toward prophylaxis. It is true that the clinics of the State hospitals tend to concern themselves mainly with the study of adults. At times, however, it is necessary for them to treat children as well. This usually occurs in districts where no child guidance clinics are available.

The location of a clinic is of much importance. It would appear preferable to place it in a general hospital, dispensary or health center. There are many reasons why such location is preferable. If placed by itself there is a certain danger that it may become isolated and be regarded much as the hospital is, by many, a place apart from the general community. Then there is the danger of

lack of support for the clinic itself, as it is more difficult to maintain close contacts with other neighboring medical clinics, welfare and relief organizations which units are all necessary for its proper functioning. The very fact that the clinic is associated with some other medical center will assist greatly in increasing the attendance as many people will come to a clinic that is labelled "Health Center" who would hesitate to come if it were simply known as a clinic for mental troubles. It is appreciated that, particularly in the rural districts, one is not always able to secure a location where he will be closely affiliated with other medical activities. In these circumstances one has to make the best of whatever accommodation is available. At least one should endeavor to select, as far as possible, a central and easily accessible location.

What surroundings are desirable that a clinic may function at its best? It is believed that there should be an atmosphere conducive to peace and quiet. Everything should work in harmony so that the patient may be put at his ease. That this may be accomplished, the waiting room should be adequate in size, light, airy, have suitable easy chairs, proper reading matter, and radiate a sense of comfort and relaxation. It is certain that the best work cannot be accomplished unless separate offices are supplied for the physician and social worker. Every effort should be put forward to see that the patient is accorded the privacy and consideration that he has a right to expect. In this way only will he feel free to unburden himself to the physician. Any attitude on the part of the clinic personnel that would lead him to consider that he is an object of charity, should be strictly avoided. I am aware that this type of set up cannot always be hoped for, yet I feel that at least the minimum required would be a waiting room with separate offices for the physician and social worker.

For a clinic to be run on a practical basis requires the keeping of adequate records. They are necessary for the guidance of the attending physician, for the information of the hospital and the department. A stenographer is desirable but it is only in a large clinic that one could hope for such an ideal arrangement. Thus a large proportion of this work falls on the social worker. This is necessary as the physician who does not devote a reasonable length

of time to each patient, finds that his cases do not return and that he accomplishes little in the way of real help.

In the clinic the question often arises as to who should take the history, the physician or the social worker. It would appear that the physician would get better contact with the patient by taking the history and important points would not be missed. It has been found, however, that a well trained social worker as a rule gets the majority of the salient features in the case and this allows the physician more time for the treatment of the patient.

There are many problems in connection with the organization of clinics by the State hospitals. Much of the difficulty arises from the lack of personnel and for this same reason, it is not possible to hold them often enough to serve the community adequately. When, as happens in many clinics, a physician is required to see as many as 30 to 40 paroled patients in a day, and 8 to 10 new cases, it is obvious that he is unable to do justice either to his patients or to the community. Insufficient time given to the individual and inadequate follow-up care are the main criticisms of our clinics. With existing conditions it is difficult to see how these matters can be corrected in most State hospitals.

Some State hospitals have a community clinic physician who takes care of the parole cases in the hospital and is responsible for its clinics. This procedure allows adequate care of the existing clinics in the district and also takes care of whatever expansion becomes necessary. Such physician also conducts clinics in child guidance. He would obviously have more opportunity than ward physicians to be in close touch with community work, judges, welfare workers and others.

The clinic physician, while he may be well qualified for the work that he has undertaken and is putting forth an intensive effort, is not free from criticism on the part of the laity. Were he able to show immediate and definite results, his work would be more readily recognized. He should be as diplomatic as possible at all times. He is dealing with a very difficult type of case, for the psychoneurotic or psychopathic individual is, as a rule, extremely sensitive. He visits the clinic only because it is strictly private and personal. If another physician is required at times to take the clinic the

original transference is lost, and in certain instances the individual does not return to the clinic. It is therefore wise, where possible, to have one physician in regular attendance at the clinic.

What can be accomplished by careful publicity, and untiring effort is well borne out by our experience at the Fulton clinic and later with the one established in Oswego. In July, 1931, the Fulton clinic came under the jurisdiction of the Marcy State Hospital. The attendance during that month was 13. By October of the same year this had grown to 20. During the first six months of the clinic the average attendance was 11. For the year 1932, 15 and for the past year, 17. It is apparent from the above figures that though progress has been slow there has been a steady increase.

It might be expected that the clinic at Fulton, being only 10 miles from Oswego, would benefit the Oswego district. This, however, did not prove to be the case even though a determined effort was made to bring home to this latter community the value of the existent service. As our efforts in the Oswego district became to be better known there gradually grew up in this community a desire for the service that we could render and the inadequacy of the Fulton clinic alone became more apparent. The Oswego people wished their own clinic and offered us the use of the health center to carry on our work. A clinic was established there June 21, 1932. As to the success of this venture I feel that it is only necessary to say that our clinic attendance became so heavy during 1933 that in July it became necessary to make this a full day clinic.

The clinic brings the community social, psychiatric and medical aid. Also it is an educational agency acquainting the public with the danger signals, keeping them constantly on the alert to watch for early symptoms of maladjustment and to seek advice and treatment at the clinic.

The early adjustment of patients should be emphasized. It is also in the best interests of the patient that he be kept in the general community as a useful member of society. Every reasonable effort should be put forward to effect a cure. Much good work has been done by the State in the past but a more determined effort is necessary if we hope to check the ever increasing admission rate to the hospitals. As in all other forms of medicine, the greatest hope lies

in getting the case early when he is more susceptible to treatment and rehabilitation.

In conclusion I quote the following as to the expectancy of mental disease taken from the presidential address delivered by Dr. William A. White at the first international congress on mental hygiene held in Washington, D. C., May 6, 1930:

"My friends, there are one million young people walking the streets of the United States today, who, if the statisticians are able to tell us the facts about the future, are necessarily doomed to spend some of their time before they die in institutions for mental disease. It is only by appreciating such staggering figures that it is possible to understand the necessity for this movement throughout the world."

BIBLIOGRAPHY

1. The parole system and after-care treatment by E. H. Howard, *State Hospital Bulletin*, May, 1913.
2. Annual report of the Department of Mental Hygiene for 1932, pages 94 to 110.
3. Community work service in the State hospitals, by Sanger Brown, II, M. D., and Clarence O. Cheney, M. D., *PSYCHIATRIC QUARTERLY*, July, 1931.
4. The problem of mental hygiene in New York State, by Frederick W. Parsons, M. D., *PSYCHIATRIC QUARTERLY*, 1927.
5. The development and extension of the parole system of the New York State hospitals, by Horatio M. Pollock, Ph. D., *STATE HOSPITAL QUARTERLY*, January, 1927.
6. Report of a survey of mental hygiene facilities and resources in New York City utilized by out-patient department of hospitals and dispensaries, public schools, social agencies and by courts and protective agencies by Greene, Pratt, Davies, Branham, New York City, 1929.
7. Intelligent living, by Austen F. Riggs, New York, 1929.
8. Social aspects of mental hygiene. Addresses by: Frankwood E. Williams, C. Macfie Campbell, Abraham Myerson, Arnold Gesell, Walter E. Fernald, Jessie Taft, New Haven, 1925.
9. Community work in mental hygiene, by Sanger Brown, II, M. D., *PSYCHIATRIC QUARTERLY*, Vol. VII, No. 4, October, 1933.

WHAT THE COMMUNITY WORKER EXPECTS FROM THE MENTAL HOSPITAL*

BY ALICE J. WEBBER,

CHIEF SUPERVISOR, DEPARTMENT OF PUBLIC WELFARE, SYRACUSE

In considering the question of what the community social worker expects from the mental hospital, long experience in community case work and a shorter but gratefully remembered period in a mental hospital job impel me to suggest a mutual need, that of "cooperation," to use the social worker's most hackneyed word. To cooperate intelligently to the end that the convalescent patient may be best helped to endure the environmental strains which he must meet, and perhaps further, to attain mental health, what, from the community case worker's viewpoint, should the hospital contribute? What should the family case worker, for example, expect from the hospital when it is ready to send a patient home on visit?

Before I mention detailed services which an out-patient clinic of a mental hospital might render, and a community worker expect, I should like to suggest what seems to be an outstanding need, not alone for the mental hospital, but also for the community worker—a need for a point of view—a point of view which embraces for both a consideration of the total situation in the family to which the patient is to return. This situation should be evaluated not only, I believe, for the patient, but also for the sake of the other family members. We are all familiar with the family case worker who zealously works to get a patient hospitalized, only to find one day that the patient has arrived home, or is about to reach there. The worker who is not always familiar with the crowded conditions in mental hospitals, especially nowadays, which make rapid return of a patient necessary, or is not afforded an opportunity often to plan with the hospital worker for the patient's return on the basis of the patient's need, may express great irritation. Without the hospital point of view she is often conscious of a great futility, especially when she has carried forward plans for other members of the family which may now be interrupted or made impossible. A consideration by both workers of what I like to call the "total

*Paper read at the Thirty-fourth Annual Meeting of the New York State Conference on Social Work.

situation," an opportunity perhaps for the community case worker to talk over with the hospital worker the whole family plan, an awareness in both of what each is trying to do, would seem to me eventually, to benefit the patient himself. This is true inasmuch as his adjustment must be powerfully affected by the emotional responses of his family, the province of the local case-worker in, for example, a family agency.

Since, too, the modern community case worker is more and more trying to see family situations and child care with an understanding of emotional factors, from, in fact, the mental hygiene standpoint, I believe she should expect the mental hospital to take some leadership in this field, and should expect the hospital to plan with her for the good of the whole group of individuals concerned. It is understood that even when the family situation is unfavorable for a patient's return, the practical situation of bed-space in a hospital is often a compelling factor, and patients who are well enough must be returned whether or no. Nevertheless some consideration of the family point of view would help the case worker to plan, even then, for all the family members.

Then too, a greater knowledge of community facilities for case work in families on the part not only of hospital workers, but also of mental hospital physicians, would, I believe, inevitably lead to more helpful cooperative effort. Merely to know a patient's home situation is not enough. Some general idea of the help that community case workers may offer would inevitably benefit the convalescent. I believe it is not too much for the community worker to expect. For example, in a nearby state last winter, a patient was returned home, probably because of the crowded condition of the hospital. The family consisted of the man, his wife and a boy of 10. There was no income and no job for him to go to. A brief visit from the hospital worker, burdened with a case load far too large, a report of an excellent home, and an interested wife, and the hospital withdrew. The home was in a small town where there was no clinic. There was, however, a social agency which had helped the wife to have the patient hospitalized. A report had been requested by the hospital and sent by the agency. There was co-operation to a degree, but it ended when home conditions were

learned by the hospital. The community worker, with whom the family situation was left, had no opportunity to learn more than the actual diagnosis of the man's condition, and, from what should have been a fountain of specialized knowledge, she had no help in planning. If the community worker could have had a short conference with the hospital worker, where the situation of the patient could have been discussed, and evaluated from the angle of each person in the family, much more intelligent help and guidance could have been given. Unfortunately it is not yet true that all case workers have accurate psychiatric knowledge—even a small amount.

This familiarity with the community case worker's aims might insure initial planning with interested agencies by the hospital worker and a mutual consideration of the situation preparatory to the patient's return. After that preparatory move I believe the community worker should expect enough time from the hospital worker to permit her to have frequent personal interviews with the patient in the home. This link to the hospital where the patient usually feels that he is understood should be a strong one. To the patient the visit is, I believe, usually interpreted as interest in him and makes a constructive job possible—a job which might not be at all possible for the community case worker who has to deal with other members of the family, often on a more practical material basis. That this frequent opportunity to see the patient alone at times other than his visits to the hospital clinic would mean for the hospital worker more time, and therefore a smaller case load, is understood. It is however, as important as the out-patient clinic service, since it is the extension of the hospital into the home.

In communities where clinic facilities are available, what should the local social worker expect? I shall not discuss here the helpful service such a clinic could render the social worker for other members of the family who might need examination and diagnosis. Such a service could be interpreted for her own use in case work, and even more valuable for the family, where treatment could be offered to those who were anxious for such psychiatric help would, of course, be of inestimable help. I shall rather limit my consideration to the service such a clinic could ren-

der the convalescent patient himself. A service with adequate time for each patient would I believe do much to keep him out of the hospital. We are all, of course, aware of the limitation of time a busy clinic with many patients imposes. We have seen them run through quickly and effectively. A few minutes with the doctor is all that most patients can expect. For some, of course, a little more time is possible. When one stops to think that all psychiatric treatment is made possible by the rapport between the patient and therapist, and that in some clinics a system of rotation of psychiatrists is still the custom, it becomes evident how difficult it is to give effective treatment on any level.

If interview time, from 20 minutes for some, to an hour for others, could be guaranteed, depending on the patient's own need, and his possibility of utilizing the period; and this opportunity made available for some patients at least twice a month; if, with this could go more frequent and longer visits to the home by the hospital worker, with time enough for regular conferences with interested social workers, the community case worker responsible for the care of the whole family, or perhaps for the care of the children in the family, might find a real help from the hospital.

I realize that I am pleading for more intensive work and for smaller case loads for both physician and hospital worker, which would mean more staff and higher administrative costs,—impossible now. Nevertheless, I believe it would save money in the long run, since it would eventually so affect family situations as to be noticeable in child care. Such a program would help to insure better mental health in families which need special care. So firmly do I believe in the effectiveness of psychiatric treatment that I do not hesitate to expect such a service from mental hospitals in the future.

To carry out this program, may I venture further, and suggest that the worker, and perhaps even the hospital psychiatrist, must increasingly develop treatment skills. Effectively to utilize more treatment time with patients, with the expectation of results from the community worker, and to take a place of leadership for other fields of social work require an increasing knowledge of how to treat. Too long has the community worker looked for help and

found it wanting. All too often she finds in clinics a group functioning as kindly, paternal parole officers. The challenge of the convalescent patient and his family is a stimulating one. Intensive, effective treatment if not to be hoped for all, or even suitable for all, could surely be expected for a few. Perhaps for fewer still very intensive treatment is not too much to expect.

May I repeat, in summarizing, what may sound like great expectations from social workers, that I believe the community worker should expect a better preparation for the patient's return home, with a consideration of the total family situation, both for the patient's own good, and for that of his relatives. She should expect from the hospital some understanding of local social case work facilities, some consideration of mental hygiene planning for all the individuals concerned, and leadership from the hospital in this field. For the patients in families under her care, she should expect frequent visits from a hospital worker, with opportunity for consultation and conference with them on family problems which will affect the convalescent. From hospital clinics she should expect adequate treatment facilities, involving enough time for the individuals' needs, and skill in treatment.

While this may seem to be an Utopian ideal, particularly impractical in a time of depression, we all realize, I am sure, that it is only by understanding our ideal that we have ever any possibility of approaching it.

WHAT THE STATE HOSPITAL EXPECTS OF THE COMMUNITY SOCIAL WORKER

BY EVA M. SCHIED,
CHIEF SOCIAL WORKER, UTICA STATE HOSPITAL

Abstract

The Department of Mental Hygiene of the State of New York has 17 State hospitals for the mentally ill situated in various parts of the State. There are 60 social workers connected with these 17 hospitals who are responsible not only for making certain adjustments for the patient after he leaves the hospital, but also for other extra-mural activities including preventive work which is done in the mental hygiene clinics.

At present there are 75 clinics connected with the State hospitals of New York which are equipped to give advice to local agencies in their adult problem cases and 77 child guidance clinics conducted by the Department of Mental Hygiene. The most intelligent, psychiatric service is one in which the agencies are quite articulate about their cases and where the worker has observed and charted symptoms, leading to the emotional disturbance. Neither psychiatry nor psychiatric social work is magical. It is a time consuming process where treatment plans are based on a comprehensive study of each individual. Inasmuch as the hospital social service departments carry large case loads and have extensive territories, the service must necessarily be more or less diagnostic and prognostic and the community social workers must be depended upon to carry out the treatment planned by the clinic. In some cases diagnosis is extremely difficult as it would take a person with the wisdom of Solomon to decide whether the home situation is the cause of the emotional disturbance or whether the emotionally disturbed person is the cause of the difficult situation. This is especially true in case of marital difficulties or parent-child relationships. Often it is a vicious circle. However, the constructive, helpful forces can be discovered and treatment suggested, to lessen the tenseness in the atmosphere. Prognosis is also difficult, as social workers well know. The adaptation of the patient may be excellent for months

or even years, until some soul destroying forces upset the individual's adjustment. The psychiatrist cannot say that a recovery will be permanent or that a patient will be immune from further attacks. The possibility of the patient having recurrent difficulties is lessened if the signs of strain are noted by interested community workers and return visits to the clinic made for advice as to meeting the situation.

A situation which seems to cause misunderstanding on the part of the community workers is the inability of the hospital to retain certain patients for treatment. Perhaps outlining the forms of commitment will show some the problems from the hospital point of view. First, there is the regular or court commitment which means that the patient has been examined by two qualified physicians and an order issued by the judge for his commitment. Such a patient can be kept at the hospital until the staff thinks that he is well enough to be tried outside the hospital. A second commitment is the one physician's certificate which allows the patient to be accepted in the hospital at the request of the physician if the patient or his nearest relative does not object to this procedure. Such patients shall not be detained more than 30 days if he or any person on his behalf shall make a written request for his release, unless the superintendent of the hospital where he is detained arranges for his court commitment. Another commitment is that of the emergency or health officer's certificate which commits a patient for 30 days' observation. In the case of the voluntary admission the patient comes to the hospital at his own request and may leave it any time after the expiration of a ten days' notice in writing. It is only on regular commitments that a patient can be kept in the hospital without further action on the part of various authorities. The State hospital physicians may feel that a patient would profit by further stay in the hospital but that his condition is not sufficiently serious to warrant taking action. Such patients of course cannot be held at the hospital pending community plans nor can the hospital hold a patient who has recovered. Some place other than a State hospital must be found for him. If the community social workers have an appreciation of these facts, it will facilitate the working out of social plans.

Why are over 59,000 patients being cared for in the hospitals at present? Because of some physical, intellectual or social condition, reality offered them no security or happiness and they fled away from it to a world of their own. This group represents a cross-section of our civilization. Some of these are not known to welfare organizations. Many of the patients in this group are usually perfectly able with the help of the hospital social worker, to maintain and establish themselves outside the hospital. The result with this group is very satisfactory to the hospital. Others are not so fortunately situated. The State has done so much in having taken over the care of acutely psychotic patients and the chronic patients for whom no adjustment outside the institution is possible, that the fullest cooperation from the community is expected in providing for the family of the patient where there is necessity, and for the patient, when the hospital authorities feel that he is ready for release.

As the psychiatric approach is better understood in the community, local agencies assume a much more desirable attitude toward mental patients and are able to understand the balance between coddling and teaching the patient to stand on his own feet. Is it expecting too much at this time when budgets are being pared to the bone, to ask for adequate relief for mentally ill persons? We know that there are a great many persons at present, who would have continued in good mental health if the economic stress had not become so intense. Work relief would seem necessary to keep them from starving to death mentally, just as surely as work relief is needed to keep others from physically starving. In other words, should not the community provide for the mentally handicapped in as adequate a manner as would be done in the case of the physically handicapped?

A splendid example of good cooperation by the community is the allowance given by child welfare boards to the family for minor children of male patients in the hospital. The desire of the administrators of this fund to discontinue the allowance, when the patient is to be released from the hospital is understood. But, picture the individual going back to his family in a state of convalescence.

ence, perhaps not able to work immediately, and being told his homecoming would rob his family of their sustenance.

Another situation is one in which the male patient can live outside of the hospital and support himself away from the family, but is unable to get along in the family circle. The financial status of the family remains the same as if he were still in the hospital and deserves consideration. The value of such cooperation between hospital social service and a Board of Child Welfare, in the program of permanent rehabilitation of patients is indicated by the following case.

Mr. Kim was 34 years of age when he was admitted to a State hospital. He had a wife and two children. His family received an allowance from a board of child welfare during his hospitalization. After a few months in the hospital, Mr. Kim began to improve, but reached a point where his convalescence was retarded because of his homesickness. Accordingly in cooperation with the board of child welfare and the village priest, a place was secured for him with a farmer, where he could work for his board and room. The welfare board agreed to continue the care of the family. At the end of the first month there was a decided improvement in the condition of this patient. He was alert and cheerful, ate and slept well. The second month was much the same, except that his improvement was indicated by the \$10 a month he was receiving from the farmer. This was increased to \$35 the next month. Four months later he secured a job in one of the big manufacturing plants, where he earned 40 cents an hour. Two months later he and his family had moved into better quarters, the patient was in good mental and physical health, entirely supporting his family. In his spare time he made furniture for the home. At the end of his year on parole he was discharged from the hospital as recovered and as having made a good social and economic adjustment. The patient has never had a recurrence of his attack and the family situation remains good.

Another group, which gives much concern to the hospital social worker and one which presents much danger from all angles, is the family of the man whose wife is sent to a State hospital. The community social worker has much to consider in such a situation. The

emotional ties of the members for each other must be considered as they may be stronger because of the psychic trauma, which they have experienced. The question of a mother substitute in the home or the placement of the children must be carefully worked out in view of the mother's illness. Including the hospital social worker in discussions of such family problems would probably avoid many difficulties.

When outside agencies wish information regarding patients in the hospital, because they are working with the families, would not the information given be more pertinent and helpful, if the local worker in the written request to the superintendent called the attention of the chief social worker to the matter? The information given is marked "privileged and confidential" and must be considered so. In the case of a patient suffering from syphilis, the local worker is often in doubt how to proceed. Consultation with the hospital social worker will make her sure of her ground and minimize the chance of syphilis remaining untreated in the community.

The hospital as a social resource is not thoroughly appreciated by all social workers as yet, nor has the hospital as a vast source of information been sufficiently utilized. This is due to no small extent to the fact that the hospitals are not easily accessible and that their staffs work at all times at a high pressure. Especially is this true in the clinics. Hence local social workers find a conference regarding problems confronting them difficult. If the hospital social worker is consulted, very often she can arrange for such a conference which may result in better understanding and better working relationships on the part of all concerned.

While the Department of Mental Hygiene has undertaken an extensive preventive program, it cannot meet the needs of paroled and discharged patients except in a small measure. Local communities should realize this and increase the opportunities for a comfortable and secure mental and emotional environment. The consolidated schools of the rural districts which offer social and cultural opportunities are good examples of efforts in this direction.

In summing up this paper we as hospital social workers ask community social workers to:

1) Understand early symptoms of mental disorders or personality difficulties and use clinical facilities available for adults and children.

2) Understand the legal limitations put upon the hospital and its workers.

3) Realize that a patient after being treated in the hospital still belongs to the community, and deserves the respect and consideration that would be given any other citizen.

4) Include the hospital social worker in the group when case work committees discuss the problems of State hospital patients or their families, if treatment is planned or a plan already working is changed.

5) Use all the opportunities afforded by the hospital to understand the treatment of emotional disturbances.

6) Realize that the responsibility of the program for preventive care and treatment of mental disease rests with every citizen of the State of New York as well as with the Department of Mental Hygiene.

HEREDITARY AND ENVIRONMENTAL FACTORS IN THE CAUSATION OF DEMENTIA PRAECOX AND MANIC-DEPRESSIVE PSYCHOSES

BY

HORATIO M. POLLOCK, BENJAMIN MALZBERG AND RAYMOND G. FULLER

CHAPTER II

Do Mendelian Laws Apply to the Inheritance of Manic-Depressive Psychoses?

In the preceding chapter it was shown that the incidence of mental disease among the siblings of 155 patients with manic-depressive psychoses admitted to the Utica State Hospital was significantly in excess of the frequency expected on the basis of the corresponding expectation in the general population of the State of New York. Such evidence is usually considered to raise a presumption in favor of the theory of the transmission of mental diseases from generation to generation through the force of heredity. These diseases are considered to be inherited when they occur repeatedly in a family, especially among collateral relatives, and when no environmental factors can be isolated which offer an adequate explanation of the origin of the disease. It is generally believed, in addition, that there is greater presumption of the existence of hereditary factors when it is shown that the frequency of a disease in any generation follows a known law of inheritance. For this reason several important efforts have been made to describe the transmission of mental diseases in terms of the Mendelian modes of inheritance.

Mendelism has been applied successfully to the analysis of the inheritance of many characters in plants and animals. Since the biologist holds that the fundamental laws of life apply equally to the whole range of living things, it has been held, by analogy, that if Mendelism applies to lower forms of life, it must be equally applicable to man. Despite the difficulties in securing adequate data with respect to human inheritance—difficulties arising from the impossibility of the experimental control of human matings, from the small size of the human family, and from the length of the human generation—it has been found that many characters such

as the texture and color of hair, and color of eyes and skin are inherited in accordance with Mendelian laws. Many abnormal characters, which are more easily studied than normal characters because they are unusual and therefore striking and noticeable, have been traced from generation to generation in accordance with the requirements of Mendelian theory. Such success induced several investigators to seek similar explanations of the inheritance of mental diseases.

Ernst Rüdin and his associates in Munich have been especially active in the application of Mendelism to the inheritance of mental disease. As these studies deal largely with the transmission of dementia præcox, however, they will be considered in detail in a subsequent chapter, to be devoted to the study of the families of a large series of patients with dementia præcox, admitted to the Utica State Hospital.

The principal American investigation along Mendelian lines is that of Rosanoff and Orr, which appeared in 1911.¹ They reported on the families of 72 patients admitted to the Kings Park State Hospital. These families represented 206 different matings, with a total of 1,097 offspring. Of the latter 146 died in childhood; no data were available in 14 additional cases, leaving a total of 937 for analysis. These were classified as normal or neuropathic. The latter consisted of "those who were recognized as insane, epileptic, hysterical, or feeble-minded, and on the other hand, those who presented anomalies of conduct or disposition which were even in the conservative judgment of our lay informants related to the neuropathic conditions. At the same time we have counted as normal all cases of mental or nervous disturbance resulting from arteriosclerotic disease with strokes, paralysis, aphasias, etc."² Examination of the pedigree charts accompanying the study shows that the neuropathic condition included such states as "very nervous, crank, convulsions in childhood, easily excited, very miserly, fainting spells, quick-tempered," etc.³ The question at once arises as to whether it is justifiable to include such a heterogeneous group of more or less vague states with definite diseased conditions such as mental disease, epilepsy, or mental deficiency, and to include all offspring with any of the preceding characteristics with individuals

who are patent defectives in a Mendelian sense. The use of such classifications has been criticized by Heron⁴ in severe language, as the statistical conclusions are necessarily affected thereby. It may be shown, however, that despite the inclusion of such doubtful categories in the definition of the neuropathic constitution, the agreement of the observations with Mendelian requirements is only superficial. Of the 937 offspring Rosanoff and Orr classified 351 as neuropathic, with a theoretical expectation of 359; the normal offspring totaled 586 with a theoretical expectation of 578. They therefore concluded: "It would seem that the fact of the hereditary transmission of the neuropathic constitution as a recessive trait in accordance with the Mendelian theory, may be regarded as definitely established."⁵ The following considerations will show, however, that the close agreement is a consequence of the failure to make proper statistical compensations for the unrepresentative character of the families of patients with mental disease.

When one chooses as the starting point of the investigation the families of patients who have been admitted to a State hospital for the treatment of mental disease, he is making a double selection, influencing the representative character of the sample. In the first place those families with no diseased offspring will not appear in the sample at all. In the second place families with two diseased members are more likely to be represented in the sample than families with but one such member. Similarly, families with three diseased members are more likely to be selected than families with two, etc. Consequently the percentage of diseased members in such a sample will necessarily be higher than that in an unselected population. This may be made clearer by the following considerations. On the hypothesis that mental disease is a Mendelian unit character, recessive to normality, and that the presence or absence of the character is dependent upon a single factor, the offspring of parents who are impure dominants (DR) will be diseased and normal in the ratio of 1 to 3. Owing to the small size of the human family such a ratio cannot always appear. Diseased offspring will be present in frequencies in accordance, in the long run, with the frequencies represented by the coefficients in the expansion of the binomial $(1R+3D)^n$, where R, the recessive character, denotes dis-

ease and D, the dominant, represents normality. In the case of families with two children, the combinations of disease and health will appear as follows: $(1R+3D)^2=1RR+6RD+9DD$. This means that, on the average, in every 16 matings of the type $DR \times DR$, resulting in families with 2 children each, there will be 1 family in which both children are diseased, 6 families in which 1 child is diseased and the other healthy, and 9 in which both children are healthy. There would thus be 32 children of whom 8 would be diseased, giving the required Mendelian ratio of 1 diseased to 3 normal. If we dealt with families consisting of 3 children the frequencies would be obtained from the expansion of the binomial $(1R+3D)^3$ giving $1RRR+9RRD+27RDD+27DDD$, which is interpreted as meaning that in every 64 such families of 3 children each, there would be, on the average, 1 in which all three children are diseased, 9 in which 2 are diseased, 27 with 1 diseased, and 27 in which all are healthy. Of the 192 children, 48 would be diseased, again giving the Mendelian ratio of 1 diseased to 3 normal. The hospital admissions obviously cannot come from families with no diseased member. In the case of the 2-child families we would be limited to a consideration of the 1 family with 2 diseased children, and the 6 with 1 diseased child, from which we obtain a ratio of 8 diseased to 6 healthy, instead of a ratio of 1 to 3. Similarly in the case of the families with 3 children, the exclusion of the 27 families with healthy children only, would result in a ratio of 48 diseased to 63 healthy.

It is obvious, therefore, that the inclusion of the 72 probands by Rosanoff and Orr, and the exclusion of any families with no diseased members, inevitably increased the percentage of the diseased, and produced an accidental agreement with Mendelian ratios. It is not necessary, therefore, to enter into any dialectic as to the legitimacy of the concept of the neuropathic constitution, since the statistical results consequent upon such definitions cannot be deemed conclusive evidence of their transmission in accordance with Mendelian theory.

Weinberg has shown how to obtain the true Mendelian ratios from a consideration of selected families. In the case of the 16 2-child families, for example, we would be limited to 8 probands.*

*The proband is the diseased person whose family history is subsequently investigated. Secondary cases are diseased siblings of the proband, discovered in the course of the family history.

Six of the probands have only healthy siblings. In the remaining family each proband has a diseased sibling. Each of the latter may be considered a secondary case. We therefore have 2 secondary cases, and 6 healthy cases, giving the required ratio of 1 to 3. In the case of the 64 3-child families, the one with 3 probands must be considered as having 6 secondary cases, for each proband has 2 diseased siblings. In the 9 families consisting of 2 diseased members and 1 healthy one, each diseased member must be considered to have 1 healthy and 1 diseased sibling, or a total of 18 healthy and 18 diseased. In the 27 families with only 1 diseased member (the proband) there were 54 healthy siblings. We would have therefore, 24 secondary cases of mental disease and 72 healthy siblings, again giving the required ratio of 1 to 3. From considerations such as these Weinberg developed his well-known proband method for the testing of Mendelian ratios among the siblings of affected individuals.***, 7

It is necessary therefore to study only the siblings (exclusive of the probands) and to find the ratio of the secondary cases of mental disease to the healthy siblings. The biological justification of the method is said to reside in the fact that the existence of mental disease in the proband is evidence of the fact that the parents possess in their germ plasm the hereditary basis (anlage) for the disease. The presence of the diathesis in the siblings is also independent of its presence in the proband. Consequently by excluding the probands, we should obtain correct Mendelian proportions among the remaining siblings. The original proband need no longer be a vitiating factor in the statistical analysis.

We may test the applicability of Mendelian theory to the inheritance of mental disease by an analysis of the siblings of the 155 probands admitted to the Utica State Hospital.

On the assumption of Mendelian inheritance none of the parents

***The appropriate formula is given by Weinberg as follows: Let the number of children in a family be represented by k . Let y represent the number of probands in the family and x , the sum of the probands and the secondary cases. Then the percentage of affected offspring according to the proband method is given by $100 \frac{\Sigma y(x-1)}{\Sigma y(k-1)}$. If in each family there is but one proband the formula reduced to $100 \frac{\Sigma (x-1)}{\Sigma (k-1)}$, which is the ratio of the secondary cases to the total siblings, exclusive of the probands.

was a pure dominant (DD), for from the mating of DD with DR, or RR, no diseased offspring (RR) could result. We would have either pure dominants (DD), or latent dominants (DR) among the offspring. Such an assumption runs counter to the fact that in each family there was at least one diseased member (RR), namely the proband. The parents therefore who are outwardly normal must be assumed to belong to the type DR. Parents on the other hand, who are patently diseased must be of the type RR. We therefore have to consider the offspring resulting from two types of matings, namely $DR \times DR$, and $DR \times RR$. The first type of mating would result in 25 per cent of the offspring being mentally diseased. From the second type of union there would arise 50 per cent of diseased children. The two types of mating should therefore be considered separately.

Difficulties in classification present themselves. Should an individual described as alcoholic (but not psychotic) be described as an impure dominant (DR) or as a recessive (RR)? Is an individual who attempts suicide a psychopath, and should he be classified as RR? In what genotype should an individual described as nervous be placed? If any of the siblings had general paralysis should they be described as recessives?

As noted above these have long been subjects of controversy in psychiatric literature, bearing as they do upon the concepts of the neuropathic make-up and the equivalence of certain psychopathic characters. For our present purposes, however, it is not necessary to enter into an examination of such concepts, for it will be shown presently, that on either hypothesis, the facts do not conform to Mendelian theory.

Of the original 155 family histories, it was necessary to eliminate 9 from the analysis owing to the incompleteness of the records. Of the remaining 146, there were 82 families in which both parents were outwardly normal, presumably producing matings of the $DR \times DR$ variety. In these families there should be mentally diseased offspring in the ratio of 1 diseased to 3 normal. There were 416 children exclusive of the probands. On Mendelian theory, therefore, there should be 104 ± 5.0 diseased children among them;

that is, deducting 3 times the probable error, we ought to find at least 89 cases of mental disease among the siblings in these 82 families, exclusive of the 82 probands. By stretching the concept of neuropathic taint as widely as possible, and including suicide, nervousness, depressions, etc., as constitutional psychopathic states, we obtain a total of 19 cases of mental disorder. These are classified as follows: 2 cases of general paralysis, 1 suicide, 1 psychopath, 7 nervous, 4 cases of manic-depressive psychoses, 1 of dementia præcox, 1 unknown psychosis, 1 alcoholic, and 1 feeble-minded. Even on such a basis the number of diseased offspring is but 21 per cent of the minimum required on the hypothesis that mental disease is a recessive unit character, resulting from the absence of a single factor which is responsible for normality. We may adjust the above data in several ways, i. e., by excluding those who died under 15 years of age, or who had not reached their 15th birthday at the time of the admission of the proband to the Utica State Hospital, on the ground that they had not yet reached the age of incidence with respect to mental disease. There were 64 siblings who had died before their 15th birthday, and 7 who were alive but had not reached that age. Excluding these 22, there remains a total of 394. The 19 siblings with mental disorders represented 4.8 per cent of the revised total, compared with the required 25 per cent. Of the 310 siblings who were alive at the time of the investigation, 15 were classified as having some form of mental disorder, leaving 295 outwardly normal. In theory each of these was still exposed to the possibility of mental disease. It is also possible that some of the deceased siblings might have developed mental disease had they lived. On the basis of the known expectations of mental disease, however, it is highly improbable, if not indeed impossible, that sufficient cases could be added to bring the total up to Mendelian requirements. If in fact, we apply rigid definitions of the neuropathic taint, and exclude such doubtful categories as general paralysis, suicide, alcoholism, and nervousness, it is evident that no agreement between observation and Mendelian requirement is possible in this series of families.

TABLE 1. OFFSPRING OF PARENTS OF ASSUMED TYPE DR×DR, CLASSIFIED BY AGE AT DEATH, OR AGE AT TIME OF ADMISSION OF THE PROBAND TO THE UTICA STATE HOSPITAL

Age (years)	Deceased siblings*		Living siblings*	
	Number of cases	Number with mental disorder	Number of cases	Number with mental disorder
Under 10	57		1	
10-14	7		6	
15-19	4		11	
20-24	8		26	
25-29	3	1 general paralysis	31	1 manic-depressive psychosis 1 dementia præcox
30-34	2		36	1 manic-depressive psychosis 1 unknown psychosis 1 psychopath
35-39	7	1 suicide	40	1 nervous
40-44	5		38	3 nervous
45-49	4	1 general paralysis	28	1 alcoholic
50-54	4	1 manic-depressive psychosis	37	1 feebleminded 1 nervous 2 nervous
55-59	2		22	
60-64 .....	..		13	
65-69	1		14	
70-74 .....	..		5	
75-79	2		2	1 manic-depressive psychosis
Total	106	4	310	15

*Exclusive of proband.

We may next consider separately a series of 48 families in which one parent might be classified as DR. In 26 of the families the other parent was described as nervous; in 14 as alcoholic, in 4 as psychopathic, and in 4 as suicidal. If we classify all of the latter as recessives, the matings would be of the DR \times RR variety. If on the other hand we regard these taints of but slight value from the standpoint of heredity, we might consider the matings as of the DR \times DR variety. On the former basis, 50 per cent of the offspring should be diseased. On the latter basis, the diseased offspring should constitute 25 per cent of the total. Exclusive of the probands there were 230 siblings in these families, among whom there were 31 diseased individuals. These included 1 case of general paralysis, 1 of epilepsy, 2 unknown psychoses, 7 of nervousness, 7 of alcoholism, 1 of involution melancholia, 2 suicides, 4 dementia praecox, and 6 of manic-depressive psychoses. On the hypothesis of DR \times DR matings there should have been 57.5 cases with mental disorders. Excluding 43 siblings who had not reached the age of incidence, we are left with a total of 187 siblings of whom 46.8 ± 4.0 should theoretically have been diseased. It will be observed that the 31 actual cases fall below the lower limit of the expected total. On the basis of matings of the type DR \times RR, 50 per cent of the offspring should have been affected with a mental taint. Obviously the difference between the actual and expected frequencies must be significant, inasmuch as the former fell short even on the basis of an expectation of 25 per cent. We must again conclude that Mendelian requirements do not fit the observations.

It is interesting, however, to note the difference in the frequencies of affected siblings in the 82 families of latent normals, and of the 48 families of the mixed category. In the former the affected siblings represented 4.6 ± 0.69 per cent of the total siblings; among the latter the corresponding percentage was 13.5 ± 1.52 . The difference, 8.9 ± 1.67 per cent, is clearly significant. Whatever the mechanism involved, therefore, or the precise nature of the underlying law, it is clear that the presence of relatively minor tainting factors, such as alcoholism, or even nervousness in one of the parents, is associated with a higher rate of cases of mental disorder among the progeny.

TABLE 2. OFFSPRING OF PARENTS OF ASSUMED TYPE DE \times RR, CLASSIFIED BY AGE AT DEATH, OR AGE AT TIME OF ADMISSION OF THE PROBAND TO THE UTICA STATE HOSPITAL

Age (years)	Deceased siblings*		Living siblings*	
	Number of cases	Number with mental disorder	Number of cases	Number with mental disorder
Under 10	29		1	1 manic-depressive psychosis
10-14	5		8	1 dementia praecox
15-19	4	1 general paralysis	11	1 manic-depressive psychosis
20-24	3	1 unknown psychosis	9	1 dementia praecox
		1 epileptic		
25-29	5		15	2 manic-depressive psychoses
30-34	4	1 nervous	1 alcoholic	
			1 dementia praecox	
35-39	2		1 nervous	
40-44	3	1 alcoholic	1 dementia praecox	
			3 nervous	
45-49	3	1 involution melancholia	1 alcoholic	
50-54	2	1 manic-depressive psychosis	1 nervous	
		1 alcoholic	1 manic-depressive psychosis	
55-59	1		1 nervous	
			2 alcoholic	
60-64	3		1 unknown psychosis	
65-69	1	2 suicides	1 alcoholic	
70-74	1			
75-79	..			
80-84	3			
85-89	1			
Total	70	10	160	21

*Exclusive of proband.

There were 8 families in which one parent was outwardly normal (DR) and the other mentally disordered (RR). The latter included cases of insane, epileptic and feeble-minded parents. There were 31 children, exclusive of the 8 probands. If we exclude 13 siblings who died when less than 10 years of age, we have a total of 18. There were 6 siblings with mental disorders, including 1 case of general paralysis, 1 of dementia præcox, 1 with an undiagnosed psychosis, 1 alcoholic and 2 suicides. The required percentage of diseased siblings on Mendelian theory is 50.0. The number of siblings is too few, however, to make the comparison significant, though it is important to note that the observed totals again are less than the expected.

There were also 8 families in which matings of the variety $RR \times RR$ may be considered. In 3 of these the matings may be considered strictly of this type, since both parents were either feeble-minded or mentally diseased. In the remaining 5 families, the matings represented unions of two nervous individuals, of a nervous individual with an alcoholic, and of an alcoholic with an alcoholic. On the assumption that these are of the same value from the Mendelian point of view, all the offspring should be affected. There were 35 siblings, exclusive of the probands. Of these only 9 were affected, of whom 8 were feeble-minded, and 1 a manic-depressive psychosis. The total is too small for significant comparison but it is noteworthy, nevertheless, that once more fact and theory are in disagreement.

We must therefore conclude that there is no evidence from the histories of the preceding families that mental disease appears in frequencies according with the requirements of simple Mendelian inheritance. It has been suggested by Rüdin,⁸ Hoffman⁹ and others that the hypothesis of dihybridism would give an adequate explanation of the frequency of certain types of mental disease among siblings. On such a hypothesis 6.25 per cent of the offspring of unions of the $DR \times DR$ variety should be diseased. By stretching our concepts of mental disease to doubtful lengths, we can bring the percentage of diseased offspring of the 82 outwardly normal parents in apparent accord with this requirement. But we cannot deem this to be a proof, in itself of dihybridism; because, if one

complicates hypotheses sufficiently, it is almost always possible to obtain empirical concordance between fact and theory. In curve fitting, for example, we can obtain any required degree of accuracy by merely increasing the degree of and the number of constants in the selected type of curve. But mere accuracy in fitting to observation is not the sole criterion. One must seek underlying reasons, justifying the application of a particular formula.

Search for such justification, however, only increases the distrust in the possibility of applying Mendelian laws to the inheritance of mental disease. In the first place there should be clear-cut clinical entities with respect to the several types of mental disorders. These entities might then be treated as Mendelian units. We should, for example, study the offspring of parents who were dominant or recessive with respect to manic-depressive psychoses. Among the siblings there should be found individuals affected with manic-depressive psychoses in ratios required by Mendelian modes of inheritance. Reference to the statistics previously presented shows that this requirement does not obtain. In the second place the development of the mental disorder should be independent of external circumstances. If this is not the case we cannot hope to obtain the correct total of recessives, for under a favorable environment it is conceivable that no one might develop a mental disease. How different is the case with such characters as eye color, for example, where the trait appears in constant proportions among the offspring, independently of environmental changes except those of a pathological order, that may affect the entire organism. In the third place there should be no differential mortality between the several genotypes. If, as is indeed probable, those with the diathesis for a manic-depressive psychosis have higher rates of infant and child mortality than the normal children, the frequency of appearance of the disease is inevitably lowered below the minimum requirements of Mendelian theory. And we may ask finally whether we are justified in assuming that a mental disease may be treated as a unit, the transmission of which through inheritance is independent of the transmission of other characters. Is it not, at least, conceivable that there is correlation instead of independence of mental traits, and that the frequency of a mental disorder is

therefore in part a function of the nature of the whole organism, rather than a phenomenon appearing in complete independence of other units in the same organism?

We may summarize our results in the statement that the observed frequency of mental disease among the siblings of patients with manic-depressive psychoses is inconsistent with a mode of inheritance based upon the supposed existence of Mendelian unit characters. We cannot reverse the argument however, and conclude that because Mendelism is inapplicable, that inheritance therefore plays no part in the transmission of mental diseases. We have shown, on the contrary, that the frequency of mental disorders among the siblings, especially, of manic-depressive psychoses, is significantly in excess of the total expected in populations selected at random. This was shown to be especially significant in connection with the siblings of female probands with manic-depressive psychoses. There appears to be, therefore, a familial basis for the development of mental disorders in many cases, though the underlying laws of their manner of transmission are not yet understood. Studies of individual families show, however, that the presence of a nervous or mental diathesis cannot be shown in many instances, and it remains to discover how a mental disorder arises in such cases. Some light on this subject may be obtained from a consideration of the following pedigrees and from the studies of environmental factors appearing in subsequent chapters.

SELECTED FAMILY HISTORIES

In the following section are given 20 pedigrees, selected from the 146 families analyzed in the preceding pages. These pedigrees are arranged so as to show combinations of abnormal taints among the siblings, parents and collateral relatives of the probands.

Cases 1 to 5, show combinations of mental diseases among siblings and in the parental generation, which are presumptive evidence of the existence of a familial basis for the presence of a mental disease in the proband. In case 6 the siblings of the patient appear normal, but there is alcoholism in the paternal branch of the family. In case 7, there is a similar combination of alcoholism in the paternal branch, and among the siblings of the proband.

In three cases, 8, 9 and 10, there are no indications of mental disease among the siblings of the proband. In the parental generation, however, there are combinations of alcoholism and psychopathy.

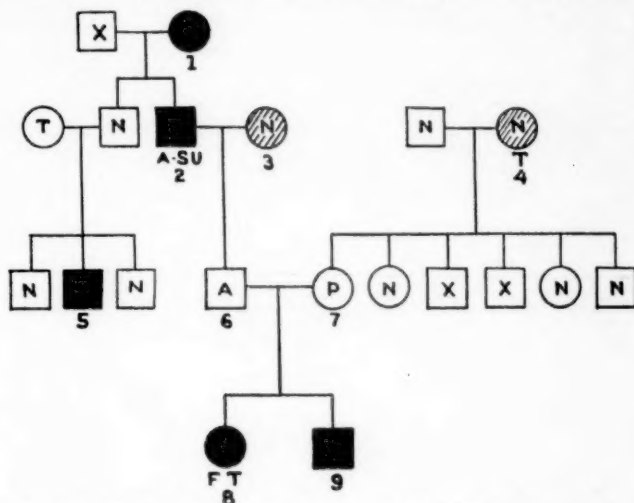
In some cases there is no evidence of mental disease in the grandparents, parents or collaterals; yet mental disease appears in two or more siblings. This is shown in cases 11 and 12.

Of special interest are cases 13 to 20, in which no mental disorder appears in three generations including grandparents, parents, collaterals, and siblings, with the exception of the proband. In these cases the presumption is strong that the origin of the mental disease in the proband does not rest on a familial basis. On the contrary it appears that a manic-depressive psychosis may sometimes develop in conjunction with a sound family stock. In such cases the causes of the disease must be sought elsewhere.

The symbols and letters used in the accompanying charts have the following significance:

Square=Male	A=Alcoholism
Circle=Female	E=Epilepsy
N=Normal	F=Feeble-mindedness
Black=Mental disease	P=Psychopathy
Shading=Nervous state	Su=Suicide
S. B.=Stillbirth	T=Tuberculosis
Circle with dot=Miscarriage	X=No data

HEREDITY CHARTS OF MANIC-DEPRESSIVE PATIENTS

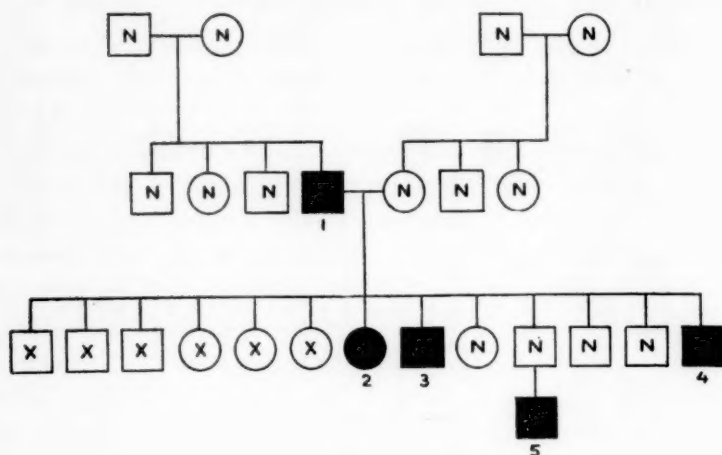


No. 1. C. E. A. Male. Admitted August 15, 1928, at age 19.

This family presents a history of mental disease and defect in four generations. The paternal great-grandmother (1) was insane for eight years prior to her death, though she was never treated in an institution. One of her sons (2), the grandfather of C. E. A., was an alcoholic, had a psychosis for seven years prior to his death, and committed suicide by hanging. His wife (3), grandmother of C. E. A., was of a nervous disposition. A paternal great-uncle had a son (5), who was treated in a State hospital for 14 months, with a diagnosis of hysteria. The father of C. E. A. (6) was an alcoholic, whose drinking made it impossible for him to hold a job. He was disagreeable and quarrelsome with the other members of the family. His habits made it necessary for the patient's mother (7), an unstable woman of inferior intelligence, to go out to work. The patient's maternal grandmother (4) was of a nervous make-up and died of pulmonary tuberculosis at 43 years. Patient's sister (8) was committed to a State school for mental defectives where she died at age 19 of pulmonary tuberculosis.

The patient (9) was retarded in school, leaving at 16 years to go to work, to help eke out the family income. He was antagonistic to his father because of the latter's habits, and quarreled with his sister. The patient, however, had generally an even disposition and was favored by his mother.

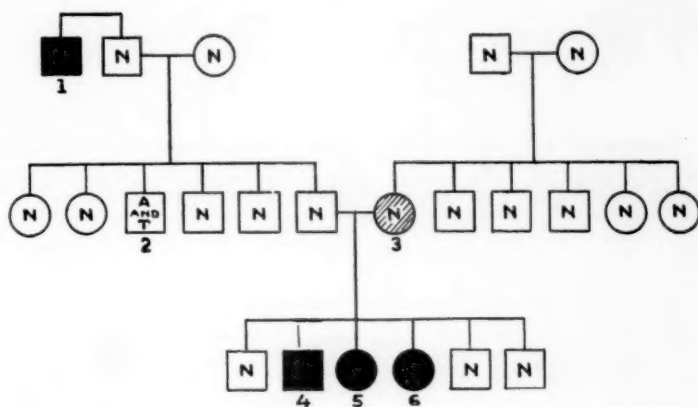
About two months prior to his admission to a State hospital the patient gave up his job rather than accept a demotion. Three weeks before admission he found a job, at which he earned \$10 per week but quit after three days. He then went to the summer camp of the State Militia, but within 24 hours became overactive and overtalkative. His excitement increased, finally necessitating his commitment to a State hospital.



No. 2. I. H. Female. Admitted June 2, 1928 at age 48.

No nervous or mental disease was reported in the grandparental generation. In the parental generation all but the father of the patient were normal; the latter (1) was a manic-depressive who died in a State hospital at the age of 65. The patient had 12 brothers and sisters of whom 6 died in infancy. Of the others 2 developed mental disorders, 1 (3) dying in a State hospital, the psychosis being unclassified. Another (4) was admitted to a State hospital at the age of 37, the diagnosis being general paralysis. Another brother, though normal himself, had a son (5) who developed dementia præcox at the age of 23. Two other brothers are still living and are in good health. One brother died of pneumonia at age 22.

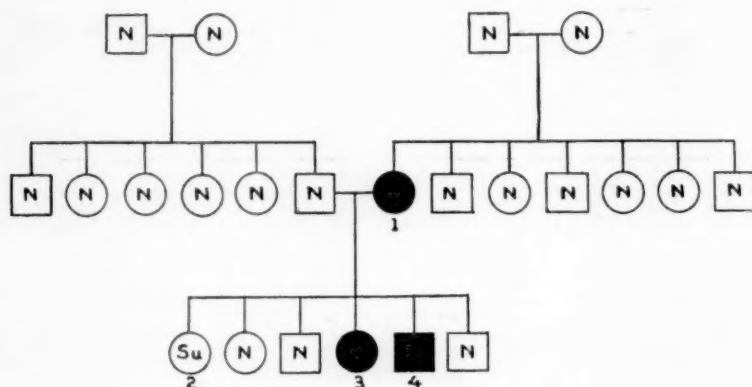
After the death of her first husband, the patient (2) married a man who drank to excess. Friction developed between him and the patient's oldest son, with whom he was very strict. Patient was very attached to this son, and took his part against the step-father, with resulting friction in the home. The step-father finally ordered the son to leave and become self-supporting. Patient developed weak spells about three weeks before admission to the hospital, became nervous and apprehensive, talked irrationally and thought she was going to die. Has been depressed, agitated and confused.



No. 3. E. M. M. Female. Admitted May 8, 1930 at age 20.

The patient's paternal great-uncle (1) was an alcoholic who was treated for a manic-depressive psychosis in a State hospital, where he died after a second attack. A paternal uncle (2) was an alcoholic who died of pulmonary tuberculosis at 35 years. The patient's mother (3) was an unstable, nervous, highly emotional type. An older brother (4) was admitted to a State hospital at the age of 19, being diagnosed as a case of dementia præcox. An older sister (6) had a manic-depressive psychosis and was admitted to a State hospital at age 19. An older brother is single and has a good education but has a very dull expression on his face. Another brother left high school after completing his second year. The youngest brother is in the first year of high school.

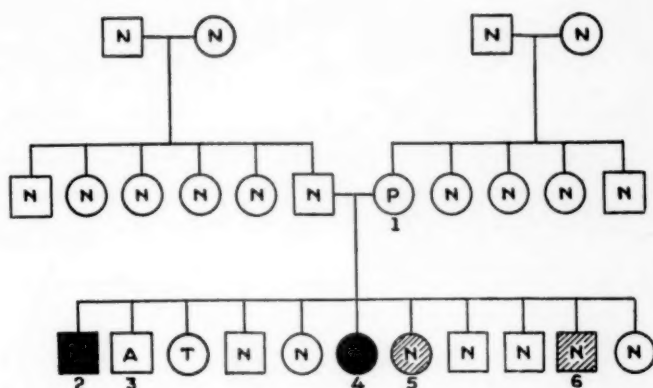
Patient (5) was of a shut-in type with only one real friend. She made normal progress in school. Shortly before the close of the school year she went on a hike with her class. She caught a severe cold and required medical attention. Several days later she suddenly became excited and swallowed a small crucifix. She was taken to a general hospital where an unsuccessful attempt was made to remove the crucifix. Later she was operated upon. She had spells of excitement, became hysterical and at other times seemed depressed. Her condition was such that the hospital authorities requested the family to remove her. At home it was necessary to keep her under close observation and as the patient could not receive the proper attention at home she was finally transferred to a State hospital.



No. 4. M. E. D. Female. Admitted December 15, 1929 at age 51.

The father of M. E. D. was a farmer, and was said to have been a man of even disposition and of good habits. He died of pneumonia at the age of 50. The patient's mother (1) was in good health until the death of her husband, when she became depressed and finally, at age of 43, was committed to a State hospital—diagnosis, dementia præcox. A brother (4) was committed to a State hospital at age of 32—diagnosis, dementia præcox. Two other brothers are married and are in good health, one being caretaker of a large estate, the other a pharmacist. A sister (2) committed suicide at age of 45, because of fear of losing her position as teacher. Another sister is married, and has one child.

Patient's father died when she was 17 years of age, and she had to leave school to help her mother. This was followed by the mother's depression and commitment to a State hospital. Patient's uncle tried to manage their farm, but it was heavily mortgaged and the family finally lost it. Patient's husband died seven years after the marriage, leaving her with three small children. She worked hard for years to keep the family together. She became overworked, run down and depressed.

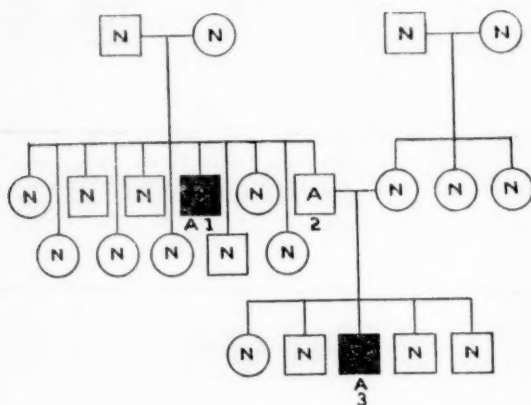


No. 5. C. H. Female. Admitted December 12, 1929 at age 37.

The paternal grandfather was a farmer who died when young, cause of death unknown. The paternal grandmother and the maternal grandparents all died at advanced ages. The father of patient was a steady, home-loving man who died of pneumonia at age 67. The mother (1) who was always of a seclusive nature, had attacks of depression that lasted six weeks at a time. The uncles and aunts were described as normal.

The oldest brother (2) was a patient in a State hospital, diagnosis manic-depressive psychosis. The next sibling, (3) a brother, was alcoholic and died of cerebral hemorrhage at age 37. A married sister, who had three children, died at the age of 41 of pulmonary tuberculosis. A brother employed as lineman on a railroad is married and has three children. A sister, a graduate nurse, lives with patient's mother. Another married sister (5) is nervous and has a daughter with a nervous make-up. Next in order of birth were two twins, one of whom was drowned at nine years of age; the other is an electrician, is married and has three children. Another brother, (6) of a nervous temperament, is married and has three children. He is employed in an automobile factory. The youngest sibling, a sister born in 1893, is married but has no children.

The patient's family lived on a marginal economic plane. The patient (4) worked hard as a nurse and endeavored to better her condition. Prior to the onset of her psychosis, she had been on a case constantly for six months, nursing a man who had a psychosis. She had had very little rest. Her spare time had been spent with her mother who was nervous and irritable. Patient was also worried by the illegitimate pregnancy of a favorite niece.

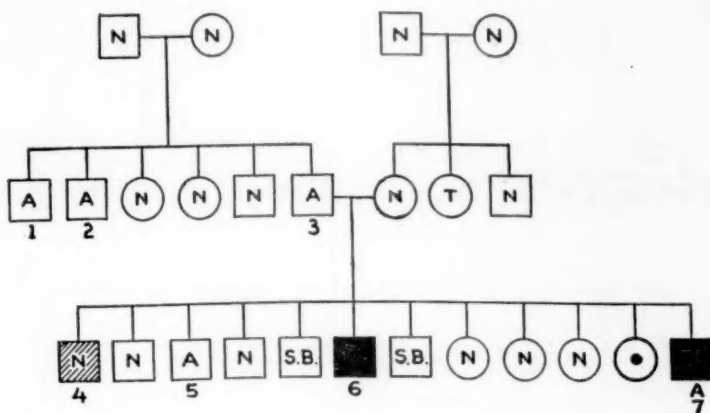


No. 6. H. W. R. Male. Admitted July 10, 1929 at age 40.

The patient's father (2) is a heavy drinker. An uncle (1) was also alcoholic and developed an alcoholic psychosis which necessitated his admission to a State hospital at the age of 55. No other cases of mental or nervous diseases were reported on either the paternal or maternal sides. A sister of the patient died at age 43. She was married and had four children. An older brother is married. Another brother died of pneumonia at two years of age. The youngest brother, a gardener, is married and has two children. The patient (3) was addicted to steady drinking, the result, in part, of the fact that his work as a carpenter brought him into contact with many men who also drank. The alcoholic habits of the patient and his father apparently did not cause any dissension in their homes.

The patient's intellectual status was dull, he being slow and retarded in school.

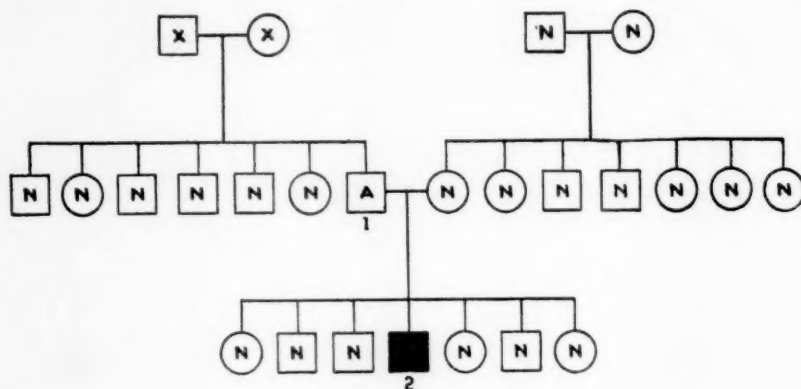
The onset of the patient's psychosis was gradual. He lost his job and thought of going into business for himself. However, he could not obtain any contracts, grew restless and developed ideas of persecution, saying that bootleggers were pursuing him. His condition grew worse and his commitment to a State hospital became necessary.



No. 7. J. K. Male. Admitted September 26, 1930 at age 39.

The patient's grandparents were described as normal, all, with the exception of the maternal grandmother, dying at advanced ages. In the parental generation there was much alcoholism in the paternal branch. The patient's father (3) was a heavy drinker, dying of alcoholism at 46 years. Two paternal uncles were also alcoholic (1), (2). The oldest brother (4) of the patient is married and has one child, does not drink and is inclined to be nervous. Another brother is foreman in a knitting mill, is married but has no children. He drinks moderately. A third brother (5) is a molder in a foundry, is married and has seven children; he is excessively alcoholic and has been arrested for alcoholism. Another brother is employed as knitter in a mill, is divorced and lives with patient's mother. Following the birth of the patient came a sister who was married to a laborer and has four children. Another sister died of influenza at 24 years of age during pregnancy. The next sister is a widow who has four children, three of whom have died. The youngest brother (7) is excessively alcoholic and was admitted to a State hospital at 24 years of age with an undiagnosed psychosis. Four years later he was admitted a second time with a diagnosis of alcoholic psychosis.

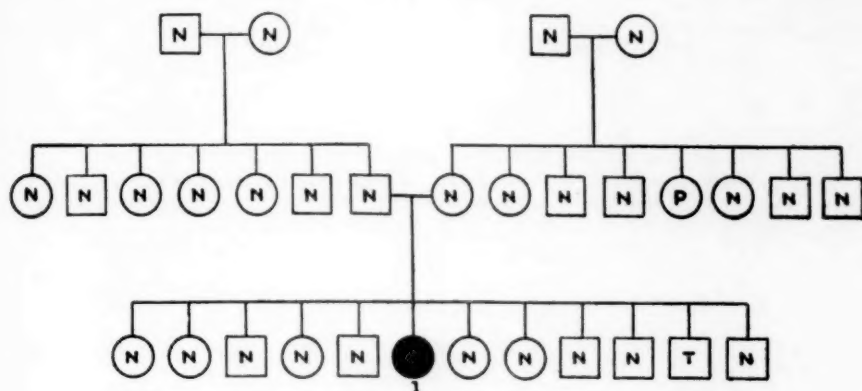
Owing to the father's alcoholic habits the patient's family lived a marginal economic existence. Patient (6) married a woman of another faith. This caused friction with his family, patient's mother and wife never visiting each other. Patient worried about his physical condition and early sex indiscretions, became depressed and had to be transferred to a State hospital.



No. 8. H. C. R. Male. Admitted September 20, 1930 at age 73.

The patient's father (1) was a periodic drinker and became intoxicated at times. When in that condition he was very mean and irritable. There is no history of nervous or mental disorders among any of the relatives on either the maternal or paternal side. The oldest sibling died at the age of 80 in England. She was married and had seven children. A brother who was married and had eight children was an engine driver; he died at the age of 80. Another brother, a blacksmith's helper, died at the age of 70. He was married and had two children. A sister who was married and had four children died at the age of 80. She was followed by a brother, a saw maker, who was married and had five children, and died at the age of 67. A sister who died at age 56 years was married and had five children. There was dissension in the home as a result of the father's alcoholic habits. The patient was friendly, however, with his brothers and sisters.

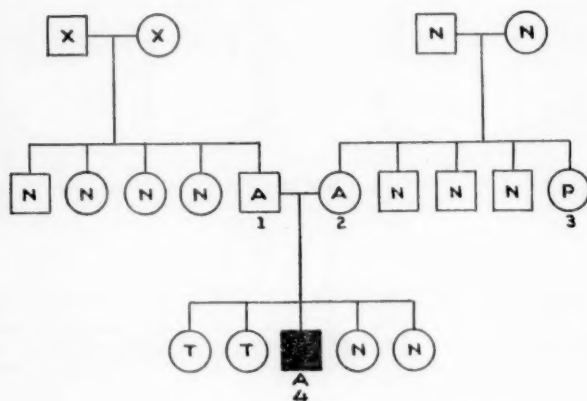
At the age of 56 the patient (2) had an attack of influenza, which was followed by a mental illness for which he was treated in a private sanitarium. Six months before admission the patient had a second attack of influenza from which he apparently recovered. In his convalescence he had a return of melancholia, worrying over the fact that he had no work and that there had been a decline in business. He worked for several days in the following June but collapsed as a result of the heat. About 10 days prior to admission to the hospital, he attempted to cut his throat.



No. 9. M. H. Female. Admitted December 26, 1930 at age 54.

No mental disorders were reported on the paternal side. On the maternal side the only untoward indication appeared in an aunt (p) who had periods of depression resulting from worry over the excessive alcoholism of her husband, who would not work. The patient was the seventh of 12 children. The oldest, a sister, died in infancy. The second, a widow with eight children is described as a hard worker. The third sibling is a farmer, married and the father of two children. He was followed by a sister, a widow, with no children, who works as a domestic. A brother died at age 33 of pneumonia. Then comes a sister who is married and has three children. Next in order is a sister who died at age 20 of appendicitis. Another brother is a teacher, married, but has no children. Another brother works in an automobile factory, is married, but has no children. A brother died of pulmonary tuberculosis at age 23. The youngest brother is a carpenter, married, but has no children.

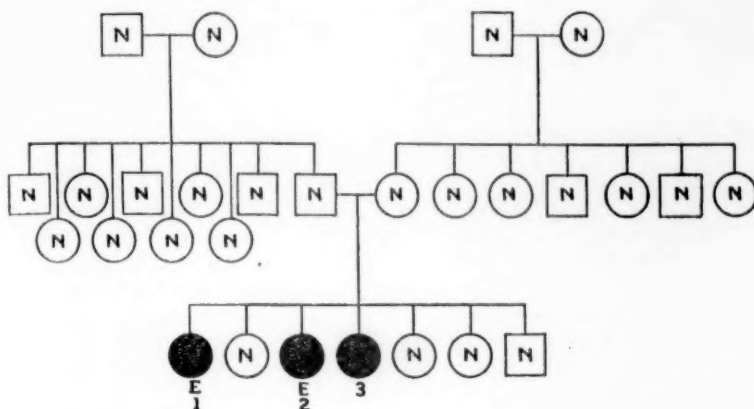
The patient (1) had to work hard throughout her life. She came to the United States in 1906; her married life was congenial and she was able to get along until October, 1930, at which time she began to worry about the expenses connected with the remodeling of the kitchen in her home. This was followed by states of depression in which she talked of committing suicide.



No. 10. J. E. Male. Admitted November 11, 1930 at age 56.

The father (1) and mother (2) of the patient were both alcoholic. The father, however, was of an even sociable disposition, but the mother was very disagreeable and abusive to the family during her drinking spells. The father had one brother and three sisters none of whom had a history of alcoholism or nervous or mental disease. A maternal aunt (3) married a man who was alcoholic, worries over which caused her to have periods of depression. Two sisters died of tuberculosis, one at age 25, the other at age 22. Another sister died of spinal meningitis in infancy. The only living sister is married and has no history of mental or nervous disease.

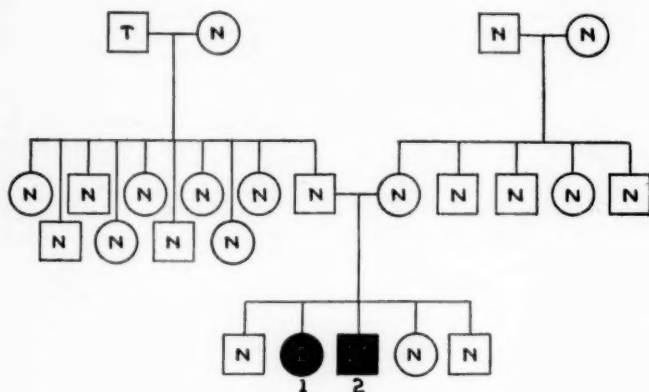
Both the patient (4) and his wife were alcoholic. He was treated in a general hospital for alcoholism. She was admitted to a State hospital with a diagnosis of alcoholic psychosis. There was much dissension in the home. Patient worried not only about his wife but about the habits of a daughter who had separated from her husband and had taken to drinking. It is thought that the patient's wife during one of her periods of intoxication attacked the patient while he was asleep. He had not worked since. He is depressed, takes no interest in anything and wants to die. He has spoken of suicide and has continued in a depressed condition.



No. 11. F. R. Female. Admitted October 1, 1928 at age 62.

There were no mental disorders in the parental and grandparental generations. The patient had five sisters and one brother. The oldest sister (1) died in a State hospital at age 49. The mental diagnosis is unknown. Another sister, a widow, has one child and is living and in good health at age 80. A third sister (2) was admitted to a State hospital at age 28 with a manic-depressive psychosis. She died at age 38 in the course of an epileptic attack. Another sister who was married and had four children died at age 69 of pneumonia. The next sister died at age 28 from blood poisoning following childbirth. A brother is a laborer and is married.

Patient (3) was the youngest child in the family, and had been treated as the favorite. There were no eventful happenings to her, until, during a period of illness at 42 years of age, she discovered that her husband was paying attentions to another woman. This caused a depression that lasted a year and brought on an estrangement which lasted until his death in 1911. She recovered from the depression and was happy and maintained normal relations with others. She began to complain of many minor physical ills. These grew more frequent in the course of many years. She then developed periods of depression and became very despondent when a son was severely burned.

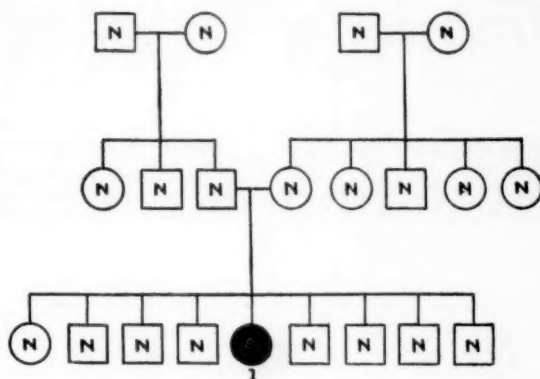


No. 12. G. M. Male. Admitted November 2, 1930, at age 25.

No nervous or mental disorders were reported in the parental and grand-parental generations. Among the siblings, however, a sister (1) developed a manic-depressive psychosis at the age of 24, and was committed to a State hospital. An older brother is a chauffeur, is married and has four children. A younger sister is married to a clerk and has one child. The youngest brother finished elementary school at 14 years of age and assists the parents.

Patient (2) had been favored by his parents as he was not very strong. There was no dissension in the home, but the atmosphere was charged with an emotional strain arising from the strict observance of the ceremonials of the Salvation Army, in which the patient's mother was very active.

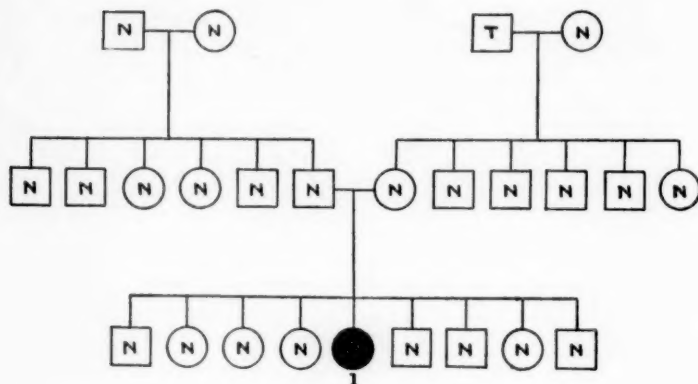
Patient did fairly well at school and later obtained work easily, mingling freely with his fellow workers. He suffered from much physical illness including bronchopneumonia, pleurisy, sun stroke and syphilis. In October, 1930 he obtained a position in a neighboring city, but he developed periods of excitement and was taken home by his relatives. Continuation of the excitement made it necessary to commit him to a State hospital, from which he was finally discharged as recovered.



No. 13. L. H. Female. Admitted August 20, 1928, at age 59.

There were no nervous or mental diseases in the parental or grandparental generations. The patient (1) was the third in order of birth. The oldest sibling is a sister who is married but has no children. She is in good health. An older brother died at two years of age of brain fever. Another brother died at age 53 of pneumonia. The next brother, a street car conductor, is married and has three children. Another brother is married and has two children. The next brother, a city employee, is married and has two sons. Another brother is blind but supports himself by operating a candy and cigarette stand. The youngest brother died at age 2 of diphtheria.

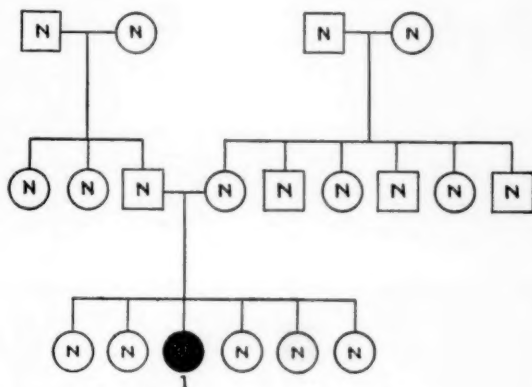
The patient has curvature of the spine and club foot. She was always friendly with her brothers and sisters. She lived with her parents and after the death of her mother took care of the house. The patient was not socially adaptable and was very sensitive. Her early religious training made a deep impression upon her. She developed a feeling of proprietorship over her blind brother and was much upset when he became self-supporting, and no longer depended upon her. She reproached herself with the thought that if she had been kinder to her father he might have lived longer. She finally developed ideas of self-accusation, talked of suicide, and had to be committed to a State hospital.



No. 14. C. O. M. Female. Admitted June 30, 1930, at age 59.

There was no nervous or mental disease among the grandparents nor in the parental generations. The patient (1) was the fifth of nine children. She had four brothers and four sisters. An older brother, is a forest ranger, and has good health. An older sister is also healthy. Two sisters died in infancy of diphtheria. One brother is a carpenter and another is a lumberman. A sister died of influenza at age 41. The youngest sibling, a brother, is living and well.

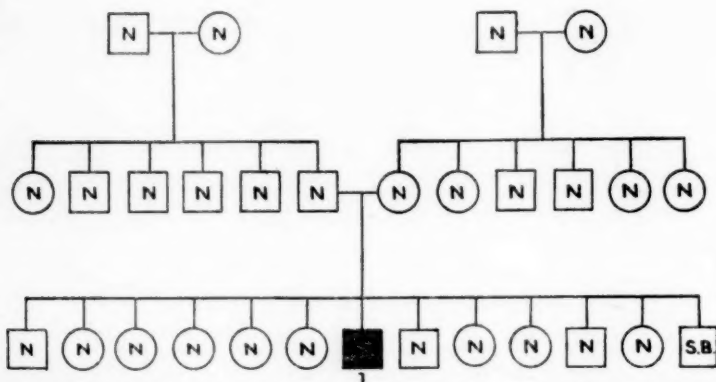
The patient made normal progress in school and began to work at the age of 13 and worked until her marriage at the age of 16. At the birth of her first child she suffered a mental upset and was ill for six months. Later the patient worried about her mother who had gangrene. After the death of the mother the patient continued to worry and could not sleep. She lost weight and appeared to have a disease of the gall bladder. She cried a great deal, and had hallucinations. She was taken to a private sanitarium where her condition did not improve, and she was finally transferred to a State hospital.



No. 15. M. W. Female. Admitted November 7, 1930, at age 43.

There was no history of nervous or mental disease in the grandparents or in the parental generations. The patient (1) was second in order of birth in a family of six. An older sister is married to a leather dresser and has one child. Another sister is married to a chauffeur, has one child and is in good health. A third sister is married to a leather worker but has no children. The next sister is the wife of an electrician and has two children. The youngest sister is married to a farmer and has four children.

The patient was of a quiet, reserved make-up and unusually neat in her appearance. She had a pleasing personality and made friends easily among both sexes. She refused several marriage proposals. In 1926 she fell in love with a young man 22 years of age. They became engaged. When the young man broke off the engagement she became so depressed that it was necessary to commit her to a State hospital.

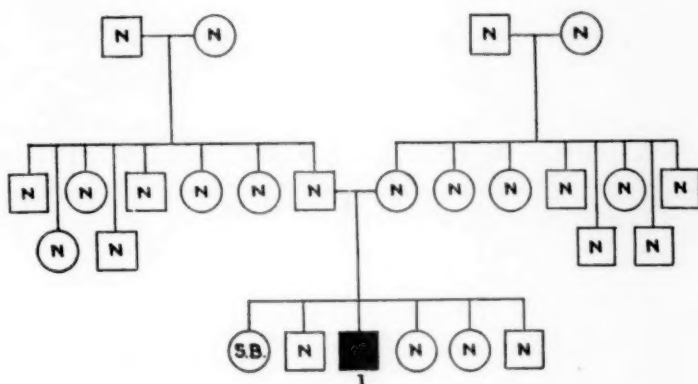


No. 16. T. W. K. Male. Admitted November 24, 1930, at age 49.

There were no nervous or mental disorders among the siblings nor in the parental or grandparental generations. The stability of the family stock is further indicated by longevity in the older generations. The paternal grandfather died at the age of 84. The paternal grandmother died at the age of 79. The maternal grandfather died at the age of 68 and the maternal grandmother died at the age of 73. The father of the patient died at age 83. His four brothers died at ages 68, 75, 68 and 74, respectively. On the maternal side, three aunts of the patient died at ages 52, 70, and 62, respectively. Two maternal uncles died at 55 and 60, respectively. The patient (1) was the sixth in a family of 12 children. The oldest died at the age of three months. A sister, a dressmaker, is single at 58 years. Another sister died at age 11 of typhoid fever. The next sibling died in infancy, cause unknown. A sister aged 51, is single and is employed as a saleslady. Another sister, a widow with four children, is a milliner. A brother 45 years of age is single. The next sibling was a sister who died in infancy. Another sister is married and has one child. Then comes a brother, who works as a salesman, is married and has three children. The youngest sister is married and has one child.

The home life was apparently happy. The mother died when the patient was 15 years of age. The patient remained at home until he was 32 years of age, when he married; his married life has been congenial.

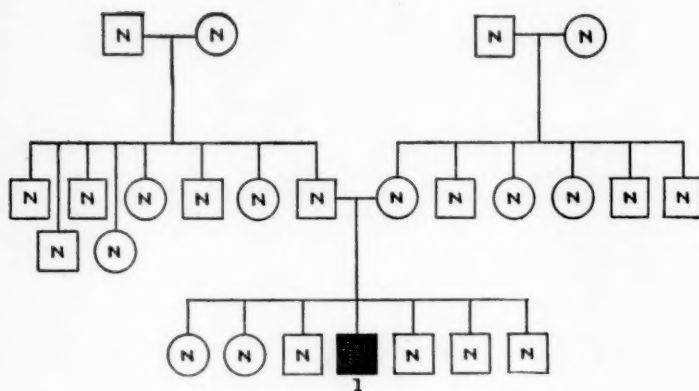
His symptoms of mental disease began at 49 years of age. He became over-talkative and worried about the fact that an efficiency man at the plant where he worked was cutting down expenses and trying to get more out of the employees. He became suspicious and thought others were spying upon him. This continued for a period of two weeks during which time he would speak to no one. He then suddenly became excited, went into a manic state and had to be committed to a State hospital.



No. 17. J. E. N. Male. Admitted January 2, 1930, at age 40.

There is no other history of nervous or mental disease in the family, including the grandparental and parental generations and the siblings. Patient (1) was the youngest in the family. The oldest brother died in infancy. A sister a widow with one child, is employed as a clerk in a store. Another sister divorced her husband and keeps a rooming house. The youngest brother died in infancy.

Patient was the favorite of the family and was coddled by his mother and sisters. He completed one year of high school at the age of 14 and did odd jobs thereafter until he learned the electrical trade. He gave this up later in order to go on a farm. He was married at the age of 24 and his married life was said to have been congenial. He had an attack of influenza in 1928 and complained of severe headaches thereafter. He became nervous and irritable and unable to control his temper. He lost interest in everything and would sit by himself. Since patient has been at hospital he has been agitated and depressed.

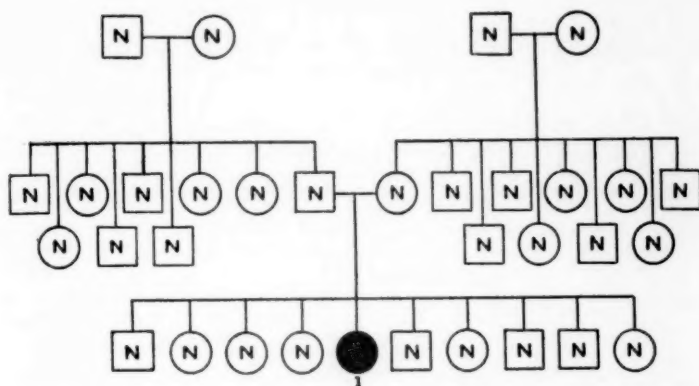


No. 18. F. H. Male. Admitted September 6, 1930, at age 47.

The parental and grandparental generations were free of nervous or mental disease. Patient (1) was the youngest of seven children. None of the others showed any symptoms of a psychiatric disorder. The oldest sister was married, had two children; she died at the age of 45 of pneumonia. The next sister is married to a tile maker and has one child. A brother aged 58 is married and has four children. He is employed as an engineer. The next brother, also an engineer, is married and has four children. Another brother is a chief engineer, is married and has two children. The youngest brother, a steam fitter, is married and has two children.

The patient made normal progress in school and married at the age of 20. His married life was congenial up to the time when his father-in-law died, leaving his mother-in-law sufficient money to live on independently. Proposals were made that the patient and his family live with his mother-in-law and he broke up his home with this idea in mind. This was never carried out as patient's wife and mother-in-law quarreled. This caused the patient considerable worry.

In November, 1929, the patient sold his home in order to take over a new business in New Jersey. He immediately began to worry, feared the business would not be a success and attempted suicide by poisoning. The family finally returned to their original home, but the patient showed no improvement. He was agitated and restless and made several further attempts at suicide.



No. 19. A. M. K. Female. Admitted June 29, 1930, at age 20.

There was no history of nervous or mental disorders among the grandparents, parents or collaterals. The oldest brother of the patient is a farmer, and was single at 39 years of age. He was followed by a sister who is married to a chain store manager and has one child. Another sister is married and has two children. The next sibling, also a sister, is the wife of a farmer and has four children. A brother, a boilermaker by occupation, is married and has one child. A sister, 28 years of age, is a domestic. A brother, 27 years of age, a laborer, is single. Another brother, 25 years of age, a blacksmith, is single. The youngest sibling, an unmarried sister aged 22, is a domestic.

The patient (1) was the youngest in the family and was favored by all. She had a friendly disposition, learned easily in school and was of an active make-up. There were no signs of any mental disorder in the patient up to the age of 19 when she became worried and afraid that she could not do responsible work in a higher grade to which she had been promoted by her employer. She became depressed and cried a great deal. She recovered from this depression and shortly thereafter came to the United States where she lived with a married sister and assisted in the house work. Later she began to study to become a child's nurse. She enjoyed this work for three weeks and then began to complain of feeling blue. She was depressed and worried, saying the other nurses were talking about her and the way she did her work. She had delusions that she had injured a baby's wrist and that she would be punished for this. She also developed delusions that her food had been poisoned. She gradually became worse and had to be committed.

REFERENCES IN THE TEXT

1. Dr. A. J. Rosanoff and Florence O. Orr. A Study of Heredity in Insanity. In *American Journal of Insanity*, Oct., 1911. Pages 221-261.
2. Ibid. Pages 228-229.
3. Ibid. Pages 230-232.
4. David Heron: *Mendelism and the Problem of Mental Defect*. Cambridge University Press, 1913.
5. Rosanoff and Orr, Ibid. Page 228.
6. For a detailed discussion, see Dr. W. Weinberg: Auslesewirkungen bei biologischstatistischen Problemen, in *Archiv für Rassen und Gesellschaftsbiologie*, 10, 1913, pages 417-451, and 557-581.
7. Dr. E. Rüdin: *Studien über Vererbung und Entstehung Geistiger Störungen*, u. s. w., Chapter 1.
8. Rüdin, Ibid. Pages 52-56.
9. Dr. Herman Hoffman, *Die Nachkommenschaft bei Endogenen Psychosen*. u. s. w.

BOOK REVIEWS

Ten Years of Industrial Psychology. By HENRY J. WELDE and CHARLES S. MYERS. Isaac Pitman & Sons, New York.

"Ten Years of Industrial Psychology" is an account of the origin and development of the National Institute of Industrial Psychology of Great Britain—the pioneer national institution—in the application of psychological and physiological knowledge to the problems of industry.

Industrial psychology is not confined to psychology proper. It includes the consideration of relevant physiological data. Industrial psychology signifies the scientific study and the improvement of "the human factor" in occupational life.

Psychological and physiological knowledge is demonstrating its enormous value in improving human power and efficiency—in improving the conditions of and incentives to work; in eliminating causes of waste of effort, time and material; in ascertaining the mental and bodily qualities required for success in different occupations; in estimating the presence of those qualities in persons choosing their life's career or applying for some vacant post; in determining the best methods of training and promotion; and in foreseeing and taking into account the often adverse changes in the human factor which are only too liable to be overlooked by those engaged in installing diagrammatic, mechanically conceived schemes of industrial re-organization.

The foundation of the National Institute of Industrial Psychology dates from the delivery of two lectures at the Royal Institution of Great Britain, by Dr. C. S. Myers. These lectures were under the title of "Present-Day Applications of Psychology." At this time Dr. Myers suggested the formation of an institution of applied psychology in Great Britain. He, together with his collaborators, set up the following criteria:

- 1—To undertake the public propaganda of scientific knowledge relating to the improvement not only of the choice, but also of the actual conditions, of occupational life.

- 2—Carry out systematic research on these subjects, and

- 3—Apply the results of such research practically to individuals and in factories, stores, offices, etc., where employers were willing to pay the cost.

The Institute's principles from the outset were not to press the worker from behind, but to reduce all causes of friction and resistance—both physical and mental—from the front. Sometimes, of course, tradition and habits

of slack rates or working, often due to slackness of management, had to be eradicated. But as a rule, it was the source of irritation, worry, fear, needless strain, and boredom that had to be diminished, and conditions of greater sympathy, interest, satisfaction, cooperation, and contentment that had to be established.

Stress was laid on the fact that the Institute was not to be established for profit, and that all funds would be used to promote by systematic scientific methods a more effective application of human energy in occupational life and a correspondingly higher standard of comfort and welfare for the workers.

The general scope of the Institute's work was planned on lines similar to those of a hospital medical school; the Institute would engage in practical work, research, and teaching, none of which could be effectively carried out singly by an organized body, apart from the two others. The practical work was to consist in undertaking investigations into the improvement of the human factor in factories, etc., in introducing better methods of selecting the workers best fitted for vacant positions, and in advising young people as to the careers for which they were most suited. The research work was to include the study of the human conditions necessary to give optimal output, the conditions of mental and muscular fatigue and boredom, and the devising of tests and other methods for better vocational selection and guidance. The teaching was to include the establishment of a library, propaganda work among employers and employed, training courses, and university and other lectures.

Thus the Institute started on its career with a plan of action specified under six heads:

1. The investigation of the best methods of applying human energy in factories, stores, offices, etc., especially in regard to (a) the elimination of unnecessary movements, (b) the most advantageous distribution of rest periods, (c) the reduction of boredom, increase of interest, etc. To these were later added (d) the planning of the layout of plant and (e) the coordination of processes in production and distribution.
2. The study of the requirements of various industrial and commercial occupations, and the elaboration and application of suitable tests, so as to secure (a) in cooperation with industry and commerce, more efficient and scientific selection of workers, and (b) in cooperation with the schools, more reliable guidance for young persons when choosing their life's work.
3. The determination and realization of other conditions which tend (a) to maximal health, comfort and well-being of the worker, and (b) to the best relations between management and labor.

4. The study of the factors influencing the sale of products, e. g., their advertisement, design, display, etc.

5. The provision (a) of lectures to employers and to workers, and (b) of training courses for managers, foremen, welfare workers, investigators, etc.

6. The prosecution of research work on industrial psychology and physiology, its encouragement and coordination throughout the Kingdom, and the publication of the facts established by such research in a form which will indicate their practical value.

Illustrations are given of work in increasing output, reducing fatigue, and increasing the satisfaction and comfort of the worker through study of the layout and incentives.

An interesting problem in a sweet factory is related where the output was increased 36 per cent through making the packing depend upon a rhythm of movement rather than as formerly on a series of voluntary decisions of the worker. A reduction of mental fatigue was accomplished.

Other work in tin can factories, and in coal mines was described. In the latter, increased illumination, rhythm of the movement with the pick and the best weight of pick, were problems. Cabinet making firms and catering firms were studied with equally satisfactory results.

These industrial investigations of the first two years abundantly proved the national and social value of the principles which underlay the Institute's work. They showed that such work reduced the strain, irritation, and fatigue often needlessly experienced by the *workers*; that it increased their comfort, health, contentment and output; and that by increasing their productive capacity it increased in many instances, their earning capacity. They showed that the *employers* benefited not only by this increased output, but also by better quality of output, by reduced waste of time, material and effort, and by improved relations between the various grades of management and workers.

Dr. Cyril Burt's work in devising tests for the selection of typists and stenographers is discussed. In 1922, a vocational section was established with Dr. Burt in charge. A journal was published that at the present time is known as "The Human Factor."

A chapter on Vocational Guidance and Research tells of methods devised through a study of groups of school children for the guidance of youngsters in selecting occupations. This work proved quite conclusively the wisdom of applying suitable tests and other procedures to counseling boys and girls leaving school to go to work.

Occupation analysis proved to be an important research problem. This

arose out of vocational guidance work. Reports have been published bearing upon this phase of the problem.

Research was instituted into improved methods of the assessment of temperament and character. Miss Spielman, so the Institute feels, demonstrated how enormously the interview could be improved through systematic methods of procedure and through rating scales.

A piece of research on perseverance was undertaken and an investigation of the value of tests in this connection was undertaken: The results are of promising value—whereby certain personality types associated with extreme perseverators and non-perseverators. The investigator believes that his tests are likely to prove of particular value in the selection of those fitted for leadership.

Another investigator devised methods of determining the ability to handle people. She has devised new methods of estimating social judgments.

The reviewer's experience in industry has shown that social judgment tests are of no practical value in choosing people who can handle others or can behave socially themselves. Social judgment and socially effective behavior are not at all the same thing, and individuals who succeed or fail in this connection are not differentiated through knowledge of the right thing to do.

The Institute emphasizes the widespread ignorance prevailing among young people leaving school, about occupations and the urgent need for more systematic and better vocational guidance.

Other researches are reported, those on motor drivers, agricultural workers (such as picking and packing of fruit and hops); the effects of menstruation on the mental and muscular efficiency of women workers, etc.

Courses in industrial psychology have been established by the Institute in connection with the University of London, and elsewhere. It is possible now to get a diploma in industrial psychology, thanks to the educational activities of the Institute.

One chapter tells of the general educational activities of the Institute which have been quite extensive, contacting and serving not only Great Britain, but other countries—South America, Europe, U. S. and elsewhere.

Five books have been contributed and various papers. But probably the Institute's Journal has proved the most useful means of spreading abroad information as to the nature and progress of industrial psychology.

The book is entertainingly written, easy and pleasant to read, but chock full of interesting illustrative material, and maintains a sound scientific point of view throughout.

Not only would its contents greatly profit managers and personnel people in general, but those writing and talking much about the new economic order would do well to get some of its philosophies and methods.

V. V. ANDERSON.

Human Mentality. An Outline of General Psychiatry by BROR GADELIUS. 614 pages. Levin and Munksgaard, Copenhagen, Denmark. Oxford University Press, London.

This volume is an English translation of the second edition of the author's book, "*Det Mänskliga Själslivet*." It serves well as a general guide to normal psychological as well as psychopathological phenomena drawing special attention to the benefits to normal psychology which have accrued from psychiatric experience. The general approach is chiefly psychobiological which is deserving of commendation.

The first chapter of the book covers in a most comprehensive and interesting manner an historical survey of psychiatry and the care of the insane in former ages. A number of illustrations add to the impressiveness of this historical sketch.

The second chapter is devoted to a discussion of epistemological points of view and the working methods of psychiatry. One might perhaps criticize somewhat the author's attempt to divorce psychiatry too definitely from general medicine rather than to suggest to the student the need to envisage psychiatry, not as a specialty standing alone, but as a part of general medicine.

He says, "However, psychiatry occupies a somewhat exceptional position among the subjects taught in medical study. It has but little kinship with the rest and does not share their fellowship. It moves in quite a different sphere, and deals with other conceptions, other values and points of view than the physicochemical which enter as constant elements into the more exact disciplines."

It seems to me, we in America, tend to think in terms of Adolf Meyer's "integrated whole" which therefore makes the psychiatric viewpoint an essential part of all other specialties.

The next ten chapters covering nearly 300 pages and referred to by the author as the "First Section" has to do with the functional structure of mental life and its morbid changes. Many references to European literature are made, much of which is valuable but perhaps not too modern.

The second section, comprising two chapters, devotes approximately 100 pages to a consideration of exogenous and endogenous causes of mental

disorder and about 50 pages to a discussion of mental disease and heredity. Here again the material is gleaned almost entirely from European literature but there is, however, a reference to the Kallikak Family reported by Goddard in 1912. Unfortunately some of the more recent and perhaps more scientific studies of heredity made by American writers placing less emphasis upon the transmission of mental disorders are not mentioned. This in our opinion is a really serious defect in this otherwise carefully prepared chapter.

Chapter XVI deals with the principles of the modern treatment of mental disease while the following chapter discusses psychoanalysis as a theory and as a mode of treatment. This portion of the book is especially well done as it includes not only an excellent description of the Freudian theory but carries the subject further into the modifications suggested by Adler and Jung.

The author's attitude toward Freudian analysis is expressed in no uncertain terms in the preface as follows: "As is well known, it is not the first time that a psychiatrist enters the lists against Freud. And it is natural that this should be so. For a ballast of psychiatric experience would have rendered his soaring speculative flights utterly inconceivable. The foundation for a psychotherapy as laid by Freud has become inadequate and unstable through his unscientific one-sidedness, but in spite of all it must be acknowledged that a foundation has been laid and important preparatory work done. And as preparing the way for a further development of psychotherapy even errors and exaggerations may be considered meritorious. The imposing erection of the Freudian exaggerations has provoked fruitful criticism, and fresh points of view have been gained from the suggestions made. Thus, directly and indirectly, there is reason to mention Freud as one of the foremost among the founders of psychotherapy."

The final chapter takes up admirably well the treatment of the mentally diseased from the point of view of criminal and civil law.

The author deserves much credit for this elaborate and comprehensive work. It certainly represents an exhaustive study of much European literature but, in our opinion, because of its very comprehensiveness does not lend itself well for use as a text for the average medical student or even the general practitioner. For a reference work in a strictly psychiatric library, however, we feel it can be very highly recommended. For this purpose a more comprehensive and complete index with an index of reference authors would prove a valuable addition.

H. A. STECKEL.

Forty Years of Psychiatry. By DR. WM. A. WHITE. Nervous and Mental Disease Publishing Co., New York and Washington.

Having been more or less intimately associated with Dr. White for some years previous to his acceptance of the superintendency of St. Elizabeth's Hospital in Washington, D. C., the reviewer recalls the interest he displayed in his patients in the Binghamton State Hospital, and also recalls the frequency with which he visited them on the various wards in an endeavor to try to get to the root of their troubles. The questions, uppermost in his mind were: "What causes them to act so-and-so?" "What brought this condition about?"—etc. At that time, psychiatry as it is now known, was in its early infancy. In order to be able to read and understand what the leading psychiatrists in Europe were doing, Dr. White took up the study of French and German, since most of the articles published abroad were in one or the other of these languages.

The reviewer recalls also the time when Dr. White left for Washington, and of his many trials and tribulations during the first few years of his superintendency, about which he remarks in his book, "Aside from the very good sized job that I inherited from my predecessor, I also inherited disputes with certain doctors and lawyers, and real estate representatives; and many of the employees of the hospital, as well as salesmen, flocked to my office, trying to take advantage, I presume, of the new-comer, who was not yet secure enough in his new position, or experienced enough in the methods of meeting its difficulties" with a resultant congressional investigation, which lasted over a period of months.

Many personal letters testify to the fact that his was not a "bed of roses," that at times he was "down" but never "out," and it is the quality of "sticktuitiveness" that has resulted in his present eminent position.

This book, "Forty Years of Psychiatry," tells not only of his strivings to place psychiatry on the high plane on which it now is, but also of his interest to constantly improve the care and treatment of the insane, and that his efforts have been one of the main factors in bringing these about, no one can gainsay.

The book is written in an easy, readable style, and should have a wide distribution.

EDWARD GILLESPIE.

General Principles of Human Reflexology. By VLADIMIR M. BECHTEREV. Pp. 467. International Publishers, New York, 1932.

It is impossible to adequately review this book. In the first place this volume, in spite of its size, is a condensed resumé of the scientific work of a lifetime of Bechterev and his disciples. Practically all of the work on which

this resumé is based was published in Russian, so that the original articles are and have been, to all intents and purposes, inaccessible to the scientists of Western Europe and America. A second difficulty comes from the fact that Bechterev's work has grown out of a philosophy which, although not unknown in American science, has really never been accepted or widely applied here. It is true that behaviorism and reflexology seem much alike, but the similarity is a surface phenomenon only. Official Soviet Russian psychology and sociology today is practically all based on Bechterev's reflexology. A third difficulty in reviewing this book arises from the fact that Bechterev is not consistent nor overly explanatory in his somewhat involved terminology. One should know the apparently enormous Russian literature which Bechterev quotes at every turn in order to really follow the line of argument, and as I have said, this literature is not available.

Such being the case, one can only report the apparent outline of the system advanced by Bechterev, together with the impression of the reviewer as to the agreement of reflexology with the scientific belief of present-day America. Several chapters are devoted to refutation of subjective psychology and to the establishment of a special form of mechanistic, objective, monistic philosophy. This is followed by an application of the laws of physical mechanics to the phenomena of behavior. The special method of reflexology, which seems to be much the same as Pavlov's conditioned reflex, is described. Many of the experiments which have been done with the method of reflexology are reported briefly. The general principles which were laid down and which have been verified are then applied to widely diversified but well selected samples of both individual and social human behavior.

In the opinion of the reviewer, Bechterev has either formulated a new set of simple, explanatory principles which really do enlighten the enormously complex problems of human behavior when these principles are grasped and applied, or he has substituted technical phrases for old words, and the phrases have obscured the problems more completely than did the words. For instance, the "inertia of mimico-somatic reflexes" may shed real light on the problem of social stability, but that it *explains* any more than the word, "habit" is not clear. Such questions can be answered only with the passage of time. Either Bechterev had a new viewpoint which will lead to a reorientation in the understanding and control of human behavior, as the Soviet government officials suppose, or he has expanded, in a naive and childish way, a few simple experiments to explain the problems of existence. Not even Bechterev has shown a way of answering the question of the ultimate pragmatic value of his philosophy and results, as compared to those of western science.

Science and Sanity. By ALFRED KORZYBSKI. 798 pages. \$7.00 The International Non-Aristotelian Library Publishing Company, Lancaster, Pa.

"Science and Sanity," a book of nearly 800 pages, is said by the author to be written for the "intelligent layman," but the reader will have to be well informed indeed to comprehend all of the mathematical, psychiatric and other scientific concepts expounded within its pages. The author has spent much time and thought in the interpretation of the material and has utilized the writings of scientists from many fields. One of his foremost contentions is that unless man brings his social organization up to date with scientific advancement, he is facing a cataclysm. Several years ago he wrote a similar admonition, suggesting the application of the principles of engineering to the social sciences. Now he suggests mathematics and psychiatry. He recommends a reform in the use of language which he believes in its present archaic form to be an improper medium for expressing thought. He believes that present day society tends to develop instability, inferiority, inefficiency and insanity, and that a different social order is necessary to develop the true nature of man. The book abounds in material which is provocative of thought, dealing as it does with the fundamental principles of present day civilization. One could wish it were easier or simpler reading; nevertheless as it deals with many social problems with which psychiatrists are much concerned at the present time, it may well be used as a source book of ideas and inspiration regardless of whether or not the reader agrees with all of its contents.

BROWN.

Adolescence. By BEVERLEY R. TUCKER, M. D. 121 pages. Price, \$1.25. The Stratford Company, Boston, Mass.

This book deals with the different problems and maladjustments of adolescence. The author feels that too little consideration has been given to this period of life. There are chapters on organic neurologic conditions, mental states, undesirable habits, conduct disturbances, endocrine and convulsive disorders. The latter part of the book has a brief reference to the sex question, in which there is a plea to "view this whole matter with a broad-minded attitude, free from artificial prejudices." The mass of material presented would be better suited to a larger book, in which case the different subjects could be elaborated. Nevertheless, it contains much useful information and is written in a sympathetic manner.

J. L. TOWER.

Histopathology of the Peripheral and Central Nervous Systems.

By GEORGE B. HASSIN, M. D. 491 pages, 229 illustrations. William Wood & Co., Baltimore, 1933.

Since the publication of the first American textbook on neuropathology by Walter Freeman, two other books on the same subject have seen the light, one by Dr. Arthur Weil of Chicago, and one by Dr. George B. Hassin of the same city.

Dr. Hassin's wide experience in the field of neurology and neuropathology makes him undoubtedly particularly well equipped to write a book dealing with the pathological aspects of neurology. He has indeed performed the task very efficiently and the various chapters of his book are a testimonial to his own vast experience in the field. Most of the illustrations of the book, are as a matter of fact taken from his own collection and in many pathological conditions Dr. Hassin expresses his own conception of the process.

The book is divided into three main parts dealing with the diseases of the peripheral nerves, diseases of the spinal cord and diseases of the brain. Most of the neurological conditions are taken into consideration and a description of the pathological processes is condensed in such a way as to briefly give the outstanding characters of the lesions. The diseases of both the peripheral nerve and spinal cord are classified as inflammatory, degenerative and neoplastic. The same classification is used for the brain to which various other chapters are added among which one dealing with progressive degenerative conditions, another taking into account the pathology of the extrapyramidal diseases and a last one the diseases of the ventricles and meninges of the brain. The special chapter on intoxications could be more extensive particularly in relation to some of the endogenous toxic substances.

The chapter on epilepsy and dementia præcox needs also more information particularly where psychiatrists are concerned. It is true that the pathology of mental diseases, especially of the so-called functional psychoses has still to be satisfactorily written, nevertheless, the problem is of such importance as to justify a little more discussion as to the significance and interpretation of the organic changes recorded in dementia præcox. Important information for the psychiatrist concerning lues of the brain will be found described under the chapter "syphilogenous diseases of the brain," and concerning arteriosclerosis under the chapter "arteriosclerotic diseases of the brain and allied states." The pathology of feeble-mindedness is to be found somewhat scattered among the birth injury lesions which takes care of porencephaly and under the heading of progressive and invo-

lutional degeneration of the brain for amaurotic family idiocy, Niemann-Pick's disease, tuberous sclerosis, lobar sclerosis (atrophic lobar sclerosis, ulegyria). Pick's disease is classified under the progressive degeneration of the brain.

Altogether the volume of Hassin represents a very valuable source of information concerning the various neuropathological conditions from the very common ones to the rare ones, a source which is the more valuable since it represents the fruit of the wide personal experience of an American pioneer in the field of neuropathology.

A. FERRARO.

Birth Control in Practice. An Analysis of Ten Thousand Cases from the Birth Control Clinic of New York. By MARIE E. KOPP, Ph. D., New York. Robert McBride and Co.

In the preparations of the text and statistical tables of this impressive volume the author was advised by a scientific committee.

The cases dealt with, seeking contraceptive advice at the clinic, all come within the restrictions of the State law permitting such advice only when the health of the patient justifies it.

These records cover ten years of the life of the clinic, and Dr. Kopp in analyzing them and bringing the results together has done not only a prodigious piece of work but an incomparably valuable service.

While there has been among medical practitioners some differences of opinion about birth control, differences reminding us anew that the entirely scientific mind is a difficult height to reach, this book clearly indicates the near approach of that time when medical advice can be openly given and the "bootlegging" practices of the past ended.

This book by the massing of evidence from every possible angle bearing upon this subject makes an immense contribution to the lifting of the fog of mawkish reticence and misguided religious intolerance which have previously so blurred the outlines of the subject and beclouded the minds of disputants.

Ten thousand cases provide a basis wide enough to support any superstructure of conclusions that the proponents of birth control may wish to erect.

Here are the records of the physical and mental conditions of mothers paying the price of too frequent pregnancies.

Here is the record in statistics that cannot be dismissed of sex practices within wedlock of such import as not to condone birth control practice but in many cases to demand it.

Here is the record of the economic conditions and the social consequences that cry loudly for the dissemination of birth control knowledge.

Here are the conclusive summations of the conditions of mothers from too frequent child bearing and the benefits accruing from contraceptives scientifically adjusted to the individual need. And here too, despite the sound and fury with which the religious aspect of birth control has been debated, is the unanswerable proof that however the clergy may condemn, that people driven by medical necessity are practicing birth control regardless of theological prohibitions and ecclesiastical anathemas.

The patients at the clinics seeking treatment comprised Jewish, Protestant, and Catholic adherents in almost equal numbers.

Dr. Kopp has added a compact summary at the close interpreting the statistical tables and stating the inevitable conclusion.

The book is not propaganda but the detached, impersonal and scientific conclusions to which the facts inevitably lead.

Nobody ought to presume to discuss this confessedly inflammable question without first assimilating the facts here presented.

WILLIAM W. PECK.

Behavior Mechanisms in Monkeys. By HEINRICH KLÜVER. 387 pages. University of Chicago Press, Chicago, Illinois.

Dr. Klüver presents in this book a systematic analysis of the various factors concerned in what might be called the normal responses of monkeys under experimental conditions. In this work he attempts a preliminary analysis of one of the most fundamental psychological problems, namely, analysis of the basis of equivalence. After the experimental psychologist, whether he be investigating human reactions or animal reactions, has classified his material into group reactions, he usually finds that the subjects may respond in a similar manner to apparently different stimulus situations. Either at this stage of his investigations or at some later stage, he is always faced with the problem as to the analysis of the factors in the apparently different situations which nevertheless produce the same result. As Dr. Klüver so clearly states there can be no other method of investigating this phenomenon except that of controlled experimentation. The results of such work, in monkeys, carried on at intervals for over several years, are presented in the present book.

Any one familiar with the difficulty and time consuming task of training and testing monkeys can have nothing but great praise for Dr. Klüver's work. In general, he makes use of one particular technique into which he

can introduce at will various modifications. In simple terms the "pulling in" technique which Dr. Klüver makes such use of here, is one in which the experimental animal is trained to react differentially to a certain weight. The weight is usually within a box which must be pulled in toward the animal by means of a string. Another weight is usually present in similar form for comparison by the animal. After the animal has learned successfully to differentiate a certain weight by merely pulling at the string, numerous variables are introduced including changes in the visual, tactile, auditory, temporal and other relationships. The observer is thus able to observe a relative constancy in response or different type of response in the presence of widely different changes in the total perceptual field, of this animal. It was Dr. Klüver's purpose here not to investigate the thresholds of response but to investigate how much the field may be varied without changing the constancy of the response. In general, therefore, Dr. Klüver changes $n-4$ or $n-5$ or more factors in the stimulus field, as contrasted with the more common practice of limiting changes as nearly as possible to $n-1$ factors. Time does not permit a thorough consideration of the work, but one can only say that this admirable piece of work will undoubtedly furnish many methods for the study of various types of animal responses associated with experimental lesions of the brain.

In addition to the description of the experimentation and enumeration of the results, Dr. Klüver devotes considerable space to a consideration of the general features of psychological experimentation with animals and considers the need for careful and controlled observations of normal behavior of animals, especially of the monkey, before analysis of abnormal or pathological responses is attempted. As he himself states in his introduction, "In the present investigation we have attempted to obtain such information as would be of value in an attempt to link up behavior data with neurophysiological data. More specifically we have been interested in obtaining data likely to be of importance in correlating behavior mechanisms with brain mechanisms." . . . "In the light of our present physiological and anatomical knowledge, it cannot very well be doubted that the study of brain mechanisms in man is furthered more by systematically studying brain mechanisms in sub-human primates than by studying similar problems in lower animals. Yet there seems to be no hope of rapidly increasing our knowledge of brain mechanisms, for example, in monkeys as long as we have no methods for testing and measuring certain forms of behavior."

His work, for example with tools, is very interesting. Whereas numerous previous observers have felt that only higher types of primates were capable of skillful use with tools, Dr. Klüver found that even the *Macacus*

Rhesus monkey may be taught to acquire considerable skill in the use of tools, within a degree of skill definitely comparable to that of higher forms. This is only one aspect of the monkey's behavior which Dr. Klüver has brought out by his thorough work. As the author feels, undoubtedly many aspects of the monkey's behavior are superimposable upon similar aspects in man. Of course, one cannot consider here the very interesting work on vision and space perception and strata stimuli in which fields Dr. Klüver is certainly an expert with monkeys.

Space does not permit a thorough presentation of Dr. Klüver's conclusions from these experiments, but in general he feels that there are undoubtedly certain forms of behavior which do not appear to be influenced by pronounced changes in the animal's environment and he feels that the constancy of this response must be referred to some properties of the stimulus by which the various stimulus constellations are identifiable. He discusses at length in his conclusions the question of "interdependence of aspects" or "phenomenal togetherness" which he feels must be determined from case to case before anything definite can be said regarding them. They acquire meaning only through careful experimental analyses.

Dr. Klüver's work undoubtedly presents a great quantity of material which should be utilized by the experimental neurophysiologist in his work with experimental lesions in the animal brain, especially with regard to the question of localization of various sensory functions. Heretofore, methods for testing of such sensations as pain or tactile acuity or visual acuity have been very clumsy or inexact. Dr. Klüver's methods make it seem possible that fine work may be performed in the analysis of pathological sensory responses and may indeed be further used in human experimentation merely by modification of some of the experimental methods.

In a short introduction, Professor Lashley states, "Dr. Klüver's monograph sets a new standard for analytic studies of behavior. He has proposed the question "Just what properties in complex sensory situations are significant for the animal's reactions?" and has carried out the investigation with unique thoroughness. As a result, he presents for the first time something approaching a complete picture of the perceptual world of an animal. This perceptual organization is surprisingly like that of man. Not only are the animals sensitive to the same physical stimuli but for them also the relational properties of the situations are the same. As with man, reactions are but little dependent upon the simple physical properties of the stimulus but rather upon abstract relations which may subsist in physically unlike situations. The processes of abstraction and generalization involved in the perception of similarity and difference seem as efficient in the Macaques as in man and not fundamentally different."

S. E. BARRERA.

An Experiment in the Measurement of Mental Deterioration.

By HARRIET BABCOCK. Pp. 105. Archives of Psychology, No. 117. New York, 1930.

Dementia Præcox. A Psychological Study. By HARRIET BABCOCK.

Pp. 167. New York, Science Press, 1933.

Dr. Babcock has propounded anew, a question which has interested students of psychopathology for many years, and offers a program of experimentation directed toward the solution of the problem. The question involved is that of the accurate description and measure of the real or apparent deterioration occurring in mental disease. Clinical psychologists have for some years past used the variations from the usual or so-called normal performance during an intelligence test as a measure or indicator of deterioration, psychopathy, neurotic tendency, etc. Dr. Babcock assumed that the clinical observation of the discrepancy between the probable level of effective mental acuity or intelligence and the ability to organize or effectively use that intelligence, is correct. She selected tests which might give measures of these two sets of phenomena. For the measurement of intelligence she uses the Terman Vocabulary test. This instrument was used, not because it is the best test of intelligence—it has been shown to be a quick and effective one—"but that it is the best for estimating the mental level of deteriorating subjects, for, besides not being so sensitive to the effects of malfunctioning, it has the advantage of being enjoyed by most subjects." For the measure of the ability to speedily organize and effectively use intelligence, Dr. Babcock assembled 20 simple psychological tests, such as counting from 20 to 1, delayed recall, drawing designs from memory, etc. In order to standardize this second set of tests, it was given to 264 mentally healthy persons who had also taken the vocabulary test. The mental age of this group, based on the vocabulary test, ranged from 5 to 20 years. The second set of tests was equated with the mental age so that the total performance on the second series gave a figure representing a differential for each year of increase of mental age. These tests were then given to parietic and schizophrenic patients. Since the discrepancy between the performance of the patient and that of the normal of the same mental age is the phenomenon for which a measure is desired, the difference between the vocabulary-mental-age rating and the speed and efficiency score is called an "index of efficiency." In practice the following procedure is followed: The mental age is determined by means of the vocabulary test. The series of speed and efficiency tests are given and the total score of that series is compared to the average score of the normal individual of the same mental

age. The number of points which the patient makes, above or below the norm, is called the index of efficiency.

In the first of these monographs the procedure was tried with 75 paretic patients, 42 who were improving and 33 who were not improving. The test was repeated at the end of three months with 40 of the patients, 26 of which were improving and 14 not improving. The results showed that the improving patients, as a group, improved significantly on the test while the non-improving patients showed a slight but not significant loss. The improved group improved more in their performance on the second test than did the normals, showing that all the improvement could not be attributed to the learning effect of repetition.

The second monograph deals with this same procedure applied to 216 normals and 206 dementia præcox patients. Of these patients 124 were cooperative, 42 uncooperative, and 40 in such a low stage of deterioration that they could not properly do the test. Dr. Babcock states that her testing program demonstrated a real difference between the mental efficiency of the normal individual and the dementia præcox patient and between the subdiagnostic groups of dementia præcox. The test shows that the most characteristic effect of the early stage of this disease is retarded association with a secondary marked learning defect. This mental slowness gradually affects well-learned motor tasks. At this level learning ability becomes very low or fades out. When the chronic stage is reached, learning is too far below normal to permit any possible compensation. At the final stage, even old learning cannot be recalled at will and no new impressions are apprehended.

So far, Dr. Babcock is on safe ground. She has offered evidence that her method measures and describes mental deterioration and that it should be of practical value. In addition, she then seeks to show that this "experimental technique gives evidence that the phenomena of dementia præcox are similar to those observed in other diseases where organic deterioration rather than mental habituation is the accepted basis of abnormality. Since deterioration will explain all the phenomena of dementia præcox, it is valid *prima facie* to accept the general explanation which accords with other types of abnormality, and it becomes unwarranted to hypothecate other causes based on observations of normal persons." Further, "That certain aspects of dementia præcox can only be explained with reference to a theory of mental impairment due to organic or physiological causes." Dr. Babcock contends with some vigor that her procedures warrant the conclusion that dementia præcox has an organic basis, since the course of the deterioration is similar to that found in the psychoses with a known organic etiology. She digresses to comment on the inadequacy of many of the present-day

concepts of the nature of dementia præcox. All of this may be true, but the experiments which she has performed, neither affirm nor deny her contention. That deterioration shows the same psychological picture in general paralysis and in dementia præcox no more demonstrates that dementia præcox has an organic basis than does the fact that the delirium attending typhoid fever, being similar in psychological content to the delirium following cerebral trauma, make the typhoid due to head injury.

To recapitulate, Dr. Babcock has formulated an index of mental efficiency which deserves attention and application, and should subsequent work verify her pioneer experiments, she has provided the clinical psychologist with an important tool. The method offers interesting information concerning the mental organization and loss of organization in the mentally diseased. No evidence is produced which shows clearly anything concerning the essential nature of the disease process in question. Indeed, it is an open question as to whether this variety of psychological method can ever give information concerning the essential basis of mental disease.

LANDIS.

Phyloanalysis. By WILLIAM GALT. Kegan Paul, Trench, Trubner and Co., Ltd., London, 1933.

This small volume, an enlargement of the author's thesis for a master's degree, is intended to bring together and to clarify the several communications of Trigant Burrow that have dealt with the question of phyloanalysis or group-analysis. In the preface Burrow himself claims that he has "consistently remained silent" as regards the significance of phyloanalysis; he has never tried to explain what "group-analysis" is. Then Burrow claims that the answer has been "ably formulated" by Galt, although Burrow is just as certain that Galt does not know what the answer is.

Burrow himself challenges the reader to understand much or any part of what he has written, "because the circumstance of man's inaccessibility to his subjective processes through the habitual sphere of mentation and the symbol is one which is automatically unappreciable within the present restricted outlook of the normal, symbol-ridden reader." Burrow refuses "to argue about it," for the very simple reason that "to do so would presuppose in our average on-looker a level of culture not yet attained by man." Therefore, unless you possess that level of culture you will probably not grasp the meaning of things. It was, perhaps, the absence of the Mesianic rôle that served to make the volume unintelligible to the reviewer.

HINSIE.

Hand Book on the Use of Crafts. By RUTH PERKINS. The Woman's Press, New York, 1934.

This book will prove of some value to craft workers and to others not so identified but who are interested in making things with the hands.

From whatever standpoint of approach, it must be admitted that the crafts have had a large part in recording the advances made by the human family, prior to the establishment of the "machine age," and that a return to the more or less primitive processes will eventually bring about a better balance in life. Whether this premise be true or not, however, can best be judged by future developments.

The "Foreword" states that "The Hand Book is to a large extent a record of a series of discoveries of how art is inescapably interwoven with the whole of life."

The chapter on "The Workshop" is extremely well written, giving an objective of the "shop itself" as a craft product and stressing, as it does, the social aspects of such a shop. It gives an excellent description of orderly and necessary procedure for the development of a center or shop for any special craft.

For anyone interested in the development of hand work centers for the sick, it is absolutely necessary to create a physical environment that will help to encourage contentment and cooperation in any normalizing activity; best of all to lessen the need to fail in social sensitiveness.

The bibliographies are good from the standpoint of industrial arts and the frequent quotations from Sara Patrick and Professor Thorndyke mark the strong influence noted throughout the book, of leaders in educational thought at Teachers College, Columbia University.

Had Miss Patrick been advising a group of occupational therapists, she could hardly have used a more inspiring sentence than that with which Miss Perkins closes the book, "We can provide opportunity for working together for common purposes." Exactly the same idea that is carried out in occupational therapy work in hospitals, where women patients are invited to participate in dressing up the ward, their day rooms or dormitory, with new curtains, new rugs, wall hangings, etc., etc. The reviewer also has had the privilege of working with Miss Patrick and knows full well what her inspiring leadership in industrial arts means.

The book list for craft programs is good but very limited, as is the list of sources of supply. They may, however, cover all that the writer intended.

ELEANOR C. SLAGLE.

Heredity and Environment. Studies in the Genesis of Psychological Characteristics. By GLADYS C. SCHWESINGER. The Macmillan Company, New York, 1933.

The study of the relative influence of heredity and environment may be approached through laboratory experiments in the case of lower organisms, but in the study of man the only available tool consists in the statistical evaluation of facts of observation. The author of the above volume may perhaps object to so sweeping a generalization, on the ground that intelligence scales enable us to experiment, by permitting us to study the intelligence of the same individual in different environments. But this is not quite the same as experimentation, for neither the intelligence nor the environment is subject to the experimental control of the investigator. The best that he can do is to record the facts as nature and society present them, and by suitable processes of analyses to attempt to unravel the underlying laws.

This objective approach is a matter of hardly more than two decades, but in this short interval an enormous literature has developed on the subject of heredity and environment. Even the specialist would have difficulty in discovering all the pertinent references. A layman would be completely lost. The author has therefore performed a highly useful function in assembling the literature, describing it in detail, and evaluating it critically.

In the analysis of heredity and environment she limits herself to the study of intelligence and personality, but she admits that the experimental approach to the latter is still in a formative stage, and consequently it is as yet impossible to state with any degree of precision how personality develops from the interplay of heredity and environment.

In the case of intelligence, however, there are now numerous objective scales, many of them, such as the Terman revision of the Binet-Simon scale, of proved value. These tests have been applied widely and have provided vast material suitable to a discussion of heredity and environment in the development of intelligence. The results of the tests are considered under a number of categories. The principal division consists of a critical summary of the studies of Freeman, Holzinger and Burks. These investigations attempt to study mental resemblances or differences brought about through change of environment. They study siblings reared apart, and children separated from their parents and placed in foster homes or in institutions. The difficulties of the subject are evident from the fact that Freeman and Holzinger come to conclusions favorable to the environmental thesis, whereas Burks concludes that heredity is the more important. Many other investigations are reported, classified with respect to cultural factors

in the home, amount and regularity of school training, and factors such as age, growth and physical disease.

It is sufficient to state that the problem of heredity and environment has not yet been given a definitive solution, but this book, which is an encyclopedia on the subject, will make it easier for all future investigators, by enabling them to avoid the pitfalls of earlier students, and by pointing out profitable fields and methods of future research.

BENJAMIN MALZBERG.

The 1932 Year Book of Neurology and Psychiatry. Neurology.

Edited By PETER BASSOE, M. D. **Psychiatry.** Edited By FRANKLIN G. EBAUGH, M. D. 468 pages. The Year Book Publishers, Inc., 304 S. Dearborn St., Chicago.

This book is edited in an unusual manner. In both neurological and psychiatric sections many subjects are discussed in short summaries in which the views of different writers are concisely given. The book is written for clinicians familiar with the general terminology and symptomatology of physical and mental disease and is an excellent book of reference for those desiring to get in touch with the later views on neurological and psychiatric disorders.

J. L. TOWER.

Observational Studies of Social Behavior. Vol I: Social Behavior

Patterns. By THOMAS, LOOMIS and ARRINGTON. 271 pages. Institute of Human Relations, Yale University, 1933.

This volume represents an interesting and noteworthy attempt to develop more precise measurements in the field of social behavior. It is a comprehensive report of the techniques which the authors have evolved for securing objective and reliable data on social behavior of individuals in "normal situations of differing degrees of structuralization." The data used in this study consist of the reaction patterns of children as observed in a nursery school group, in a kindergarten, and in a trade school group, and of the behavior of adults as observed in industrial situations.

One of the outstanding merits of this technical, statistical analysis of the observability of social phenomena is the degree of success attained in the attack on the difficult problem of classifying the different measurable kinds of behavior in varying social situations. Particularly illuminating to students of social phenomena is the critical exposition of the methods of observing aspects of behavior so that more objectively valid and reliable results may be obtained.

CHAS. M. REBERT.

The St. Lawrence University.

Spend Your Time. Prepared by Parent-Teachers' Association, Bureau of Publications, Teachers' College, Columbia University, New York.

The information contained in this little book is organized for reference according to subject and would seem to be an almost indispensable book for libraries, schools or other organizations to whom questions regarding resources of authoritative information are so often addressed.

This 70-page book lists well-known centers for cultural and recreational pursuits that take on an added significance at the present time when it is popularly supposed that the increasing amount of leisure is becoming a need of very great importance, a degree of which can be taken care of through the sources listed.

The most important point in listing the various centers is to call attention to agencies already established and functioning in an effective manner. It is perfectly obvious that it is not possible to include all the facilities of so large a city as New York, but those that are listed have been selected with discriminating care. Judgment as to the value of the wide range of facilities covered in this book depends on individual choice and selection. To illustrate, on turning to the section dealing with art, fine and applied, there is an excellent list of museums, associations, galleries, clubs, workshops, etc. Also, under "Music" will be found schools of music, music libraries, collections, organizations, concerts and lectures, as well as publications and radio programs. This is a fair example of the thoroughness with which the listing has been made.

ELEANOR C. SLAGLE.

The Parent and the Happy Child. By LORINE PRUETTE, Ph. D. \$2.00. Henry Holt & Co., New York City.

This book traces the child's development from birth to maturity, with special attention to those factors which influence the mental growth of the child, and indicates many situations in the home which are responsible for faulty methods of thinking resulting in various forms of behavior difficulties and even anti-social conduct. It emphasizes the fact that unless there is perfect harmony between the parents, the ground is already prepared for mental abnormalities in the children. It goes on to show how many of the pitfalls can be avoided. It is an invaluable manual of instruction for the young parents. A ten-lesson study course is outlined for them, with references and questions. This should be of great interest to parent-study groups, and to every one concerned with the mental development of children.

H. G. HUBBELL.

The Dynamics of Therapy in a Controlled Relationship. By JESSIE

TAFT. 296 pages. The Macmillan Company, New York.

For some years social workers have been thinking in terms of the treatment of the individual. This term included the various steps which the social worker took in her effort to help the patient work out his adjustment on a more satisfactory basis. While the social worker was helping the patient to work out his difficulties, she was aware of the fact that something seemed to happen to the individual which could not be accounted for solely by the help she might be able to bring to him such as medical care, and relief from various environmental pressures. The social worker became conscious of a relationship existing between the client and herself which might be used either constructively or destructively for the client.

Dr. Taft considers the constructive use of this relationship therapy. Her book is an effort to show the possibilities of this relationship when the worker is sufficiently well trained to "let the individual take the help he can accept on his own terms." She conceives of this therapeutic function as one involving "intense activity on the part of the worker, but it is the activity of attention, identification and understanding, of adaptation to the individual's need and pattern combined with an unflagging preservation of the worker's own limitation and difference."

With this conception of therapy, Dr. Taft gives in detail two case records showing what limitations are imposed and the obvious uses to which the patient puts this relationship.

Dr. Taft then gives us her interpretation of what has transpired and to what extent she thinks the patient has been able to use it for his own growth and development.

This is a book which will be read widely by those interested in personality problems. To the social worker it will contribute some stimulating ideas for each contact she may have with clients. While one may not accept all of Dr. Taft's ideas, one cannot but admire her courage and her sincerity in sharing her thinking and her experience regarding these important elements in therapeutic work with the individual.

HESTER B. CRUTCHER.

Social Planning and Adult Education. By JOHN W. HERRING. 135 pages, 1933. The Macmillan Co., New York.

The reader agrees wholeheartedly in a passage quoted in the "Foreword" of this book to the effect that "Society should not drift aimlessly to and fro, backward and forward, without guidance," etc., etc. As the contents of

the book are unfolded, it is apparent that guidance is not always acceptable. It is, however, of great interest to learn from the intimate description contained in this book, of the attempts made by the citizenry of Chester County, Pennsylvania, to know itself, to some degree, from three standpoints; namely, the rural area, the small town, and the county, and from this triple background, as it were, to develop on paper a comprehensive plan for procedure.

The book records the efforts made to uncover both large and small problems within a given area, and the steps that were deemed necessary to meet these problems. The contribution this book has to make to the literature on the subject of social planning is that it contains a particularized description of Chester County, also the objectives sought in dealing with county problems and the detailed program which followed a completed study of the whole. Any county authorities seeking a plan for the purpose of study, with similar objectives in mind, will find this book of value because it points out weaknesses as well as strength, and frankly records failure as well as success in some of the undertakings.

The term "adult education" in connection with the general scheme of the book, appears to the writer to be ill advised, since it, *the education*, is an indirect rather than direct process, dependent on the quality or kind of adaptation that makes participation possible in so general a scheme, even though it be an entirely comprehensive one. Duplication of effort and uncoordinated activities undoubtedly lead to confusion in any locality and the Chester County plan of procedure, as presented in this little book, is a worthy plan and does credit to the high and efficient authorities who have assisted local authorities in developing it.

The situations relative to public health, mental hygiene nursing, etc., apparently presented problems that have led to serious study, the results of which certainly other sections of the county might well consider before setting up an independent study on similar subjects.

Occasionally individual leadership, in rural areas in particular, is not only wholesome but breaks down mental restrictions and sets up friendly relationships that are so highly important.

The writer counsels against accumulating responsibility for any county but, without organization, how can various public social duties be carried on intelligently? However, in many states where county organizations have received a good deal of attention there still remains much to be done by the people who are residents of the given locality.

The reaction of the human family is not an easy problem to deal with and the success of this or any other plan depends upon the actual participa-

tion of the people who live in the rural districts as well as those who live in the more densely settled localities.

The book certainly unfolds the great effort made to include both large and small problems within the area mentioned and to study from every social angle the necessary machinery to meet these problems.

Anyone who has dealt with social experiments of any kind can well understand that an undertaking of this kind could not be 100 per cent successful on the principle that "You can drive a horse to water but you can't make him drink."

The sincerity with which the facts are compiled in this book are certainly very worthy of attention by those who are interested in the subject of social planning.

ELEANOR C. SLAGLE

Psychology. By SHEPHERD IVORY FRANZ, M. D., Ph. D., and KATE GORDON, Ph. D. 490 pages, illustrated. McGraw-Hill Book Company, New York.

The scope and purpose of the book can be best stated by quoting from the authors' preface. "We have tried to keep in mind the needs of the elementary students and the general reader . . . Each is interested in knowing what psychology has to offer which deals with the problems of life as he encounters them. In this respect he does not differ from the student of chemistry or any other science. Theoretical consistency, or a system, is of little or no interest to him and he does not need it. In fact it may be a distinct disadvantage to him, it tends to make him one-sided, prejudiced or intolerant toward many matters which he cannot fit into his adopted system and which he should consider impartially . . . We tried to bring together those matters which are equally important for all—for those who may become interested in the philosophical implication of psychology, as well as for those who desire to learn how it helps toward an understanding of themselves and their fellows."

With that purpose in mind, "the pages which follow have been written by nine students of psychology representing different interests and different specialized training. The book is, however, not a mere collection of independent essays. The original draft of every chapter was read, criticized and often extensively amended and rewritten by other contributors. The book is truly a cooperative endeavor in much the same manner that a composite photograph may represent many persons."

The text consists of five parts:

1. Orientation. In this part the authors present the historic beginning of psychology, i. e., the triple progenitors of the subject, philosophy, physics and psychology. Although the authors do not align themselves to any particular school, they seem to defend the mind-body dualism on pragmatic grounds.

2. The General Aspects of Mind. Under this head concepts as "will," "temperament," "feelings," "emotion," "personality" and "intelligence" are comprehensively discussed.

3. Psychological Foundations. Into this part is lumped together a large body of facts and theories concerning learning, basic activities, including nervous and muscular activity, instincts and language, nerve structure and function and sensations. The authors cover an unusual array of neurological and physiological factors, a field to which the senior author has made a major contribution.

4. Mental Activities. Chapters are devoted to each one of the following: "association," "perception," "attention" and "imagination," "memory" and "forgetting."

5. Schools of Psychology. In this are included analytical psychology, purposivism, behaviorism, gestalt and psychoanalysis.

In its scope the book professes to be eclectic. It presents a wealth of material in a very readable, interesting manner, which is very suitable for the purpose that the authors set for themselves. It is quite obvious that it would have forfeited its own purpose if the authors had made any attempt to be more critical in their point of view and to take sides in theoretical speculations.

This book is very well suited as a text in a course of psychology in the pre-medical curriculum. As far as the reviewer knows, one other text has been written with that purpose in mind and this one compares very favorably with it.

The book contains no bibliography. This is included in the supplementary volume, "Psychology Work Book," by the same authors.

KATZ.

Poetry of the Insane. Compiled by Dr. CHARLES E. MAYOS, East Moline State Hospital, Moline, Illinois. Waverly Press. Baltimore.

This unusual book of poetry of 112 pages is a collection of poems written by patients in State hospitals for mental diseases in various parts of the United States. This selection is from a still larger one which has been collected over a period of years by Dr. Mayos. Much of the material may not

be of very high standard, judged as poetry, but some of its seems to have genuine merit. Judged by the light it throws on human nature as met with in mental disease, it is highly interesting. The poems deal with the most varied topics including reminiscences, hopes, despair, hatred, love and suspicion. In them altruism, loyalty, patience, courage, justice and a sense of humor are seen far more frequently than bigotry, unkindness, bitterness or hostility, although the latter are seen from time to time. A different series from this same source might reveal somewhat different trends, although anyone knowing the insane will agree that despite their disordered ideas, the more worthy traits of human nature are found among them in quite as generous degree as in mankind at large.

Some of this poetry is conventional in thought and expression, some adapted from familiar poems and themes, but some is original and truly revealing.

BROWN.

Measurement and Guidance of College Students. First Report of the Committee on Personnel Methods of the American Council on Education, with an Introduction by Dean Herbert E. Hawkes, Ph. D., LL. D., Chairman of the Committee. 199 pages. Published for the American Council on Education by the Williams and Wilkins Company. 1933.

This work is an outgrowth of the attempt of the Committee on Personnel Methods of the American Council on Education of "affording for college students more accurate and helpful information concerning their capacities for the various vocations." In pursuance of this purpose, the Committee on Personnel Methods outlined the following projects, each of which was to be undertaken by a special sub-committee: The personal record card; achievement tests; personality measurements; vocational monographs; and factors in the character development of college students. The reports of these sub-committees constitute the five chapters of the volume in question.

Everyone of these chapters should prove highly useful to vocational counsellors in colleges and universities. While the results of the sub-committees' operations are at best somewhat subjective, as they naturally must be, particularly in the field of personality measurement, nevertheless they reveal a restraint and conservatism and a minimum of assumption that make them a distinct contribution to the difficult problem of advising youth.

CHAS. M. REBERT,
The St. Lawrence University.

Education on the air. Edited by JOSEPHINE H. MacLATCHY. Published by Ohio State University, Columbus. 1932.

This volume, the Third Year Book of the Institute for Education by Radio, is published by the Ohio State University. In Chapter I is discussed National Aspects of Radio Education which includes a discussion of the use of the radio in political campaigns, national school broadcasts, commercial stations and other topics. Chapter II discusses broadcasting technique including the making of a radio address, the personality of the speaker, the way to prepare talks for children, the preparation of the program, etc. Chapter III, broadcasting in schools, deals with the various educational methods including training school teachers to use radio programs, social science broadcasts, French lessons by radio and other subjects. Experimental measures and foreign broadcasting are discussed in the two remaining chapters.

The book indicates the scope and possibility of broadcasting and shows how its educational value may be used to full advantage. It is of value to persons giving radio talks, preparing broadcasting programs and courses and is an important contribution to a subject which is becoming of increasing significance in the world today.

BROWN.

Mental Hygiene in the Community. By CLARA BASSETT. 394 pages. The Macmillan Company, New York.

In response to the ever-increasing interest in the subject of mental hygiene, innumerable books of varying degrees of worth have been written on this topic. The majority of these books have been directed toward the problems of the individual, though industry, education, medicine have not been entirely overlooked. But the wide implications of community life in which physicians, nurses, lawyers, educators, preachers, parents and psychiatric institutions have full knowledge of the working principles of mental hygiene have probably not been comprehensively set forth previously.

Miss Bassett's studies as consultant in psychiatric social work, in the Division of Community Clinics of the National Committee for Mental Hygiene have given her an excellent background for such a book. She gives not only her own ideas as to the far-reaching implications of mental hygiene when it becomes a part of the armamentarium of physicians and a part of the equipment of educators, parents, nurses and social workers, but also wisely chosen quotations from other authorities on these subjects.

There are 12 chapters, each one of which discusses mental hygiene and

some aspect of community life. At the end of each chapter Miss Bassett gives a most comprehensive outline for investigation of the subject at hand. For instance, after the discussion of mental hygiene and medicine suggestions are made for the investigation of mental hygiene developments in schools of medicine. Similar suggestions are made for the evaluation of mental hygiene in public health agencies and schools of nursing, educational institutions, especially those having to do with teacher-training and the various other phases of community life to which mental hygiene has an important relationship. So comprehensive are these outlines that anyone interested in mental hygiene development in a given community would do well to survey the existing resources in the light of these suggested investigations.

Miss Bassett's book is one which will long be used as a guide in developing and evaluating community mental hygiene.

HESTER B. CRUTCHER.

A City Set on a Hill. By C.-E. A. WINSLOW, Dr. P. H. 367 pages. Doubleday, Doran & Co., Inc., New York.

Many people have made health surveys of various localities, but few have the gift of putting this information before the public in an interesting way. Dr. Winslow has given us a most readable account of the health demonstration conducted by the Milbank Memorial Fund in Syracuse which, by the expenditure of \$500,000 in health work, resulted in an economic saving of well over \$2,000,000. But the economic saving is not the only important result of such a program. To quote the author, "It has far-reaching effects in the enrichment of the life of the individual."

Dr. Winslow begins with giving the historical high lights of the city with special emphasis upon health developments. A careful study and evaluation is then made of the wide aspects of present health program. While all the varied aspects of this program are interesting and revealing, to the readers of the *PSYCHIATRIC QUARTERLY* the chapter of Mental Hygiene will be of greatest interest. Dr. Winslow points out that the problem of mental disease and defect is the most important single problem in the entire field of community health. He suggests a general program for meeting this problem and indicates what progress has been made in this direction in Syracuse. He then gives specific recommendations as to present needs in this field.

Anyone who is interested in the problem of health will find this book of value and physicians and social workers might well use it as a guide in securing the general background they should have regarding the communities they serve.

HESTER B. CRUTCHER.

Diet in Sinus Infections and Colds. By EGAN ULLMAN, M. D. 21 chapters, 155 pages. Published by the Macmillan Company, New York.

The author states that sinus trouble is, in the main, due to improper diet. We should look for a fundamental change in the organism which makes our system more susceptible to the development of colds and all their consequences. All cases of colds and sinus infections show symptoms of marked acidosis. The writer sketches the development of diet up to the present time and states that civilization first did all it could to devitalize our food and is now making spasmodic efforts to find the vitamins which it first eliminated. He stresses the importance of an alkaline diet and claims that it not only contributes much to the well being but provides possibilities to produce the same labor with less nutrition in acid diet. Food tables are given, showing acid and basic values. The following principles or guide are laid down:

1. The use of only fresh food.
2. Restriction of salt.
3. Preference of alkaline food.
4. The reduction of animalic protein.
5. The reduction of carbohydrates.
6. The use of unrefined carbohydrates whenever possible.

He then outlines the management of the patient when placed on prescribed diet. At the conclusion of the book references are given and a number of recipes and menus.

This book has considerable value in calling attention to the importance of maintaining an alkaline balance and proper chemical constitution of the body. It is possible, however, in the opinion of the reviewer and nose and throat men consulted that the author minimizes the question of infection in sinus and allied conditions.

JAMES L. TOWER.

The Physician's Art; An Attempt to Expand John Locke's Fragment, "De Arte Medica." By ALEXANDER GEORGE GIBSON. Cloth. 237 pp. \$3.00. Oxford University Press. 1933.

In this scholarly book are discussed those principles that might be termed the philosophy of healing, with aphorisms upon those qualities of mind which are indispensable for the good physician.

"The Physician's Art" is the record of a search for the ideal and immutable in the practice of medicine based upon reflections noted down in the daily course of practice and is the result of serious and prolonged study from many points of view.

LYBYER.

The Eugenic Predicament. By S. J. HOLMES. 232 pages. Harcourt, Brace and Company, New York, 1933.

Professor Holmes' earlier books on eugenics have given him a reputation for soundness and moderation of views. His new book will add to this reputation. It will prove useful to all educated readers, being neither too technical nor too voluminous.

Though Professor Holmes uses much of the older data, he shows that he follows current literature very assiduously, for his citations are taken from quite recent contributions in a wide variety of journals. He appears especially impressed with the subject of heredity and mental disease, and cites much German literature emanating from the laboratory of Ernst Rüdin. It is a useful function to call attention to these important studies, though it appears to the reviewer that Professor Holmes is not sufficiently critical in their evaluation. It is a difficult task to secure adequate and sufficiently numerous family histories from which to deduce the relative parts played by heredity and environment in the causation of mental diseases. Much remains to be elucidated, especially as to statements of exact laws of the inheritance of mental diseases. We are still far from describing the transmission of mental disease or mental defect in terms of Mendelian expectations.

Chapter VI should prove of especial importance to the lay reader. In it the author replies to several critics of eugenics, notably Clarence Darrow, Raymond Pearl and H. S. Jennings. Darrow's views are of a sociological rather than biological character, and seem steeped in prejudices which Professor Holmes exposes in a masterly manner. The arguments of Professor Jennings are primarily hypothetical, and consist largely in the statement that the genes may unite in chance, and therefore unpredictable, combinations. Professor Holmes does well to assert that experience is the best answer to this type of argument, and that experience plainly indicates that well-endowed parents are more likely to have well-endowed children, than are parents with poor native endowments.

It is on this basic fact of experience that the eugenist rests his case, and it is a case that on the whole gains strength from the treatment in this book.

MALZBERG.

Marriage. By ERNEST R. GROVES. 552 pages. Henry Holt & Company, New York.

This, as the author explains, is a textbook on marriage written with the definite purpose of educating and training young people for marriage as a life experience, and having its inspiration in a course on the subject of

marriage given at the University of North Carolina. It is difficult to describe the scope of the book without reciting the subject matter of the 31 chapters but be assured that sociology, science (so named), law, economics, psychology, physiology, philosophy and modern mores lead one inexorably, if not from the cradle to the grave, at least from adolescence to involution, and in so comprehensive a fashion, complete almost as life itself, that the professional advisers of the love-lorn might well find here their encyclopedia of wisdom if not their more lurid vocabulary. In spite of abundant pointing out of dangers and pitfalls there is also heartening presentation of the purpose of marriage as "an adventure in fellowship," and the formulation of ideals which combine romanticism and practicality and give due weight to the rights of individualism and to the claims of partnership. Leaving youth to supply its own moonlight and roses, he devotes himself to figures of family budgets and he gives especial attention to the problem of woman's ambitions and marriage adjustment, the dilemma of the woman who works and marries. There is also a chapter on the art of growing old. Even the two final chapters on divorce and the problems of the unmarried serve best to demonstrate the need of education for successful marriage. The manner of dealing with the material is at all times admirably frank, thorough and enlightened and although sex necessarily receives much attention the author well states that "this text does not conceive domestic adjustment as merely sex adjustment." Recognition is given to the influence in motivation and reactions of the mental mechanisms made familiar by the psychoanalysts, for example, in discussing the choice of a mate, the conditioning of sex through childhood experience, the social background of sex attitude, heterosexuality, and sex adjustment in marriage. This is done with clarity and simplicity and entirely without the jargon which usually prevails in psychological discussions. Seeming evasions are defended by the necessity of maintaining a non-partisan attitude on controversial subjects, such as birth control and divorce, and one looks in vain for the freedom of a Bertrand Russell. But the extensive references to literature dealing with such subjects mollify even this disappointment. The tone is serious, sympathetic and, perhaps pardonably so, a trifle heavy, but the reader may somewhat indulge the flippancy which the subject of marriage naturally provokes in the chapters on courtship and the honeymoon, for example, the solemn evaluation of Niagara Falls. How well the author has succeeded in his professed effort to keep in mind the age level and the purposes of those for whom the book is written may best be judged, and the appreciation of the book considerably enhanced by reading simultaneously "*Virginibus Puerisque*," by one R. L. S., who wrote "For marriage is like life in this—that it is a field of battle, and not a bed of roses."

S. L. SMALLEY.

Social Year Book. 2nd edition. Russell Sage Foundation. 680 pages. Price \$4.00. William F. Fell Company, Philadelphia.

The Social Year Book of 1933 contains nearly 700 pages including the index. It consists of two parts; the first part is a source book in social work. It contains highly valuable material as in it are found a history and discussion of all important social activities including such diversified topics as the foster care of children, adoption, day nurseries, public health nursing, health education of adults, cancer, epilepsy, heart disease, etc.

The section on mental hygiene is written by recognized authorities and the topics dealt with include psychiatric social work, child guidance clinics, mental disease, mental defect, behavior problems and other subjects.

Part 2 contains listings of public and private national agencies and public agencies. One wishing to gain a comprehensive general knowledge of social activities from many points of view and the background of important social movements will find it authoritatively set forth in this book. It is a necessary book for libraries of social welfare societies as well as highly valuable for the individual worker.

BROWN.

Human Aspects of Unemployment and Relief. By JAMES M. WILLIAMS. \$2.00. University of North Carolina Press, Chapel Hill, North Carolina.

This book is in two parts, the first deals with the social effects of unemployment and welfare practices and draws a very gloomy picture of the effects of the depression chiefly by citing many examples of the mental reactions produced by loss of employment and a lowered standard of living and the present methods of welfare organizations in combating them. While the examples given are probably not overdrawn, one gains the impression that the author has searched his files for the most distressing cases to illustrate the shortcomings of the present methods of welfare procedures.

Part II is entitled "Public and Private Welfare in Action;" in this he outlines improvements in the methods of relief. Like many others at the present time, he finds the "cause of this unprecedented depression in the new industrial revolution," and makes the statement that mechanical and other inventions have decreased the number of men required in industry per unit of product and that this had caused widespread unemployment long before the depression. This, of course, is a debatable question, inasmuch as new mechanical inventions have opened up new industries employing thousands of men at occupations unheard of previously. However, the book is well worth reading if only for the suggestions for the relief of unemployment and social betterment.

H. G. HUBBELL.

The Art of Feeling, a Psychology of Our Human Adventure. By
HORACE G. WYATT. Houghton, Mifflin Co., Boston, Mass.

A book of practical psychology, showing just how efficiency, success and happiness can be controlled through the training of our emotions.

Mr. Wyatt was born in England, spent many years in the east, and is now residing in California. He possesses a style relatively unique in one who presumes to write on psychology. He is not only clear and simple, but presents his ideas in a practical manner, without too many technical words to confuse the lay reader. As he says in the preface, "The reader need bring to the reading no special training, but only a willingness to question his own mind and his own heart and to do that sincerely; that is, not to be too much biased by favorite 'isms,' nor too much inclined to think ill or well about himself."

He employs the word, "art" in his subject title to emphasize that he believes by practice and insight skill may be acquired in feeling appropriately to the occasion, thus making the most out of one's emotions.

The context is divided into five parts and 24 chapters with some valuable observations at the end under "Notes and Comments."

If one can successfully pass through the questionnaire in the introduction he will become fascinated immediately with the opening chapter on "Feeling and Imagining" and the interest will be held to the end.

The chapter on "Understanding Others," indicates the depths of his understanding of practical psychology.

A vein of humor and sympathetic appreciation is ever present and it is definitely clear that the author understands the relation of emotions to human thought and life.

In Part II, under "Feeling and Thinking," he interests the reader in his masterly way of showing how emotions "out of line" may act as a hinderance to thinking; then in the following chapter he beautifully encourages us by showing how "emotions in line" with the objective raise the level of thinking, stabilize, straighten it and makes it more fertile.

Part IV might be a sermon in character, reminding us to review Christ's Sermon on the Mount.

In his concluding Part V he recognizes our present limitations and makes quite rational predictions for the future.

Altogether, each succeeding chapter holds our interest and stimulates us to make more and determined efforts to develop the "Art of Feeling."

GRAY.

The Thyroid Gland. Its Chemistry and Physiology. By CHARLES R.

HARINGTON. 222 pages. Oxford University Press, London, 1933.

The author of this monograph is a chemist who has made outstanding contributions to the knowledge of the chemistry of the thyroid gland. His chief aim in writing the monograph has been to describe in some detail the chemistry of this gland and to consider such other chemical factors which play a role in the relation of the gland to the organism and to the environment. The latter aspect has rendered it necessary to deal with various phases of physiology and pathology. This, as the author indicates, he has done only in the limited manner required for his main thesis.

The chemical chapters deal with the general chemistry of the thyroid, isolation of iodine compounds from the thyroid gland, the chemistry of thyroxine, the constitution of thyroxine and its relation to its physiological activity and of the thyroxine content to the physiological activity of the thyroid gland. The remaining few chapters deal briefly with general physiological considerations including a short historical review, special physiological considerations and methods of assay and lastly with the biochemical aspects of Graves disease.

A good deal of space is devoted to a consideration of the organic chemistry of thyroxine whereby the constitution of the compound was established and the steps required for its synthesis, aspects of the subject to which the author has made outstanding personal contributions.

One not well versed in organic chemistry will find it difficult to follow the discussion of the technical phases of the chemistry of the compounds. However, the author's liberal use of graphic formulae renders it somewhat easier for one to visualize the chemical relationship of the various compounds and the nature of the changes which alter the physiological action of these compounds.

Although chemical studies have advanced our knowledge regarding the probable nature of some of the important substances in the thyroid gland, little or nothing is gleaned as to the manner in which they enter into the chemical processes of the body. One wishes, for example, that the author had given some consideration from the chemical standpoint to oxidation and reduction mechanisms in the body and their relation to thyroxine and the thyroid gland.

Physicians who still consider Graves disease as a disease of the thyroid gland primarily, may well read the brief chapter on the biochemical aspects of Graves disease in which the author concludes that the palliative surgical treatment of this disease is devoid of any rational basis and is a reproach to all interested in the physiology of the thyroid gland.

MEYER M. HARRIS.

The Pregnant Woman. By PORTER BROWN, M. D. 174 pages. Eugenics Publishing Company, Inc., New York, 1933.

In his introduction the author states that a woman's life from childhood to maturity is a preparation for marriage and childbearing. In his first chapter he devotes considerable space to describing in detail many of the common superstitions connected with childbirth. Although the infant mortality rate is still too high, its reduction largely compensates for the lower birthrate. There was a time when births were so unlimited that women who were fertile bore as many as 15 or 20 children and it was not uncommon for such a family to lose one-half or more of their children. He comments upon modern childlessness as being one of the most frequent causes of divorce. The chapters on Anatomy and Physiology of Pregnancy go into more of a scientific and technical discussion of the subject than can be readily comprehended by the usual lay reader for whom this book is intended. His sketch of the function and internal action of the endocrines is written in a most entertaining manner.

He believes that young people should be instructed in attitudes and methods that will fit them for the fine art of living together. Marriage should be a fulfillment of desire, joy, love and life but often it is little more than a misapprehension, disillusionment and alienation.

The author traces the incidents of pregnancy from conception to completion of involution. He discusses the various complications which may arise at different periods, giving appropriate active and prophylactic treatment. His frankness in discussion of prognosis might cause the expectant mother to feel concern. The later pages deal with common infections, as gonorrhea, syphilis, sepsis and pelvic hygiene. Throughout the book the author's style indicates familiarity with his subject gained through practical experience.

R. G. WEARNE.

Life in the Making: The Story of Human Procreation. By ALAN F. GUTTMACHER, M. D. Pp. 297. Price \$2.75. The Viking Press, New York, 1933.

This popularly written book presents the subject of human reproduction in an extremely interesting, sane and scientific way. It puts in enough of the curious to continue the reader's attention but it does not befog the essential facts. The book should be owned by every physician not only for his own reading but also as a book that he can recommend to his more educated patients. It is not in any way spoiled by the mock idealism so frequently found in books of this sort.

J. L. MC CARTNEY.
Elmira Reformatory.

American Red Cross Text Book on Home Hygiene and Care of the Sick. Fourth Edition. Paper bound. 391 pages. P. Blakiston's Son & Co., Inc., Philadelphia.

This is the fourth edition of an important volume on nursing care of the sick published under the auspices of the American Red Cross. The original was published in 1913 under the joint authorship of Jane A. Delano and Isabel McIsaac. The present volume has a foreword by Livingston Farrand and a preface by Clara D. Noyes, chairman of the National Committee of the Red Cross Nursing Service. The contents include a wide list of subjects, individual health and personal hygiene, babies and their care, sick room appliances, medicines, care of patients with communicable disease and many other topics. Of particular significance to persons interested in mental hygiene is the section on mental health, which includes excerpts from a number of leaflets and pamphlets published by the New York State Department of Mental Hygiene. This book contains such a wealth of material authoritatively given that it has become a sort of nurses' bible, and should be in the library of every nurse.

BROWN.

Set the Children Free. By FRITZ WITTELS, M. D. 242 pages. Published by W. W. Norton & Company, Inc.

There has been much talk of the need for understanding the child and there has been much literary and scientific effort devoted to the meeting of this need. Much of value to parents has been produced though some books on the mental hygiene of childhood can do little more than give the parent the virtuous feeling that he has read something on child development and training.

Dr. Wittels has written a book which should give the parent a better understanding of the way a child feels and hence the reason for his responses in various situations. The book, which is written in an ambling, readable fashion, begins with the "Impulses of the Child." From this abundance of feeling and impulse the author traces the development of the mechanisms which constitute the mind. The author uses many vivid case illustrations to clarify his points.

The author discusses wrong doing and punishment, children and their parents, parents and their children, step-children, divorced parents, illegitimate children and orphans, the old school and the new from the standpoint of the psychoanalytic development of the individual child.

While one may not accept all of Dr. Wittel's interpretations of the child's development nor will one find much of constructive value regarding

discipline, one cannot read this book without having a more sympathetic and tolerant understanding of the child and desire to help him develop with the minimum amount of psychic trauma.

The book is intended for the lay reader, but doctors and social workers will enjoy it and find it helpful.

HESTER B. CRUTCHER.

Two to Six. By ROSE ALSCHULER. \$1.50. Wm. Morrow & Co., 386 Fourth Avenue, New York.

This book is a very complete manual of instruction for parents in the care and training of young children. The suggestions given are the result of practical work of experienced workers in the field of child education. The author is chairman of the pre-primary group of Winnetka public schools, Winnetka, Ill. The various sections have been prepared for publication by special committees made up of members of this group. A great deal of space is devoted to the technique for building habits in dressing, sleep, eating, toilet, and social conduct. It also contains for parents a very complete bibliography of non-technical books covering the different phases of the pre-school field. The book should be valuable to parents as well as to teachers and instructors of young children.

H. G. HUBBELL.

The Gate of Remembrance. By FREDERICK BLIGH BOND, F. R. I. B. A. 215 pages. Price \$2.50. E. P. Dutton & Co., Inc., New York.

This book first published in 1918 and now in its fifth edition, is concerned with psychic research and deals with the discovery of certain lost chapels of the Glastonbury Cathedral in England. It is alleged in the book that these chapels were found through spirit communication with monks who had lived several centuries before. Many of these messages purporting to come from deceased persons came through mediums by way of automatic writing in peculiar old English style. Illustrations and other drawings accompany the messages, and the book is otherwise illustrated.

To pass judgment on a problem of this nature requires much research. To many persons the book would appear to be the product of the imagination of its writer. Various objections, however, to this conclusion are found in the text. Readers interested in psychic research will therefore find it necessary to read the book in order to draw any conclusions; but in this controversial field impartial judgment is almost impossible at the present time as most persons have made up their mind beforehand. Readers may be divided into a small group who ardently believe in psychic phenomena, and the majority who have no belief whatever in these manifestations.

BROWN.

La Folie Au XXe Siècle. Etude Medico-Sociale. By Dr. A. RODIET and Dr. G. HEUYER. Masson and Co., Paris, 1931.

The subject matter of this volume is largely that of the incidence and varieties of mental diseases occurring in Paris during and since the war. The assumption was that the thoroughly abnormal conditions of war must have had deleterious effects upon the mental health of both combatants and civilians. The problem therefore is primarily statistical in nature. Was there an increase in mental diseases, and if so, what varieties were manifested, and what special causes were in operation? Unfortunately, the statistical treatment of this theme is wholly inadequate. Readers who are not interested in quantitative evaluations, however, will find interesting descriptions of many types of war neuroses.

The greater part of the volume consists in detailed case material illustrative of each of the many types of mental defect and mental diseases constituting the French classification of these disorders. As a review of the views of contemporary French psychiatrists on questions of nosology and treatment this part of the volume should prove of value to American readers.

Probably of greatest interest, however, is the concluding chapter, which deals in detail with the problem of family and colony care for patients with mental diseases. Many experiments have been undertaken in the past decade in the establishment of such systems in and about Paris. The attitude of the general public towards non-institutional care of the insane appears to be more favorable towards such experimentations in France than is the case with us. Consequently we can follow with advantage the progress of this movement (in France and elsewhere) and thereby prepare ourselves for an extension of similar activities in the United States.

MAIZBERG.

The Foundations of Psychology. By JARED S. MOORE, Ph. D., and HERBERT GURNEE. Pp. 274. \$3.00. Princeton University Press, Princeton, 1933.

As stated in the preface, this volume is designed to serve a two-fold purpose: as a textbook in advanced courses in general psychology and for general reading on the subject of the nature and method of mental science. This book contains matter not usually found in the ordinary textbook on psychology and it pre-supposes previous knowledge of the subject. It cannot be recommended as light reading; but for any person who wishes a review of the various schools of psychology he will find within these pages a thorough-going discussion of the many theories of thought which have been advanced.

The book is divided into three parts: first, the various definitions or conceptions of psychology which have been suggested in the past and are being extended today with the aim of drawing synthetic and positive conclusions as to the merits of these various conceptions; second, the field of scientific psychology, its distinctiveness from metaphysics on the one hand and from physical and biological sciences on the other; third, the postulates necessary for the construction of a scientific psychology with special attention paid to the problems of parallelism, psychical causation and the sub-conscious. The discussion on the sub-conscious is of special value to any physicians who are interested in a clear understanding of medical psychology. The diagrams given in Chapter VIII are well worth studying. The references given after each chapter give a comprehensive bibliography which undoubtedly can be of service in supplementary reading.

J. L. MC CARTNEY.

The School Health Program. Section III. Education and Training. White House Conference on Child Health and Protection. 389 pages. The Century Co., New York, 1932.

This book is a compilation of summarized reports submitted by the various sub-committees of the Committee on the School Child.

The committee had as its chairman, Thomas D. Wood, M. D., professor of health education, Teachers College, Columbia University. Collaborating with him were an able group of people representing both education and medicine.

The book contains a great deal of material presented in a very condensed form, therefore, to discuss each chapter here is not practical. In this review only chapters of special interest to readers of the *QUARTERLY* are commented upon.

The book begins with an excellent article called, "The Philosophy of Education," written by Dr. Wm. H. Kilpatrick, Ph. D., Professor of Education, Teachers College, Columbia. The article is commendable, both from the standpoint of education and of mental hygiene. Dr. Kilpatrick emphatically disagrees with the old idea of learning, which is that knowledge consists of material already fixed and is something which must be handed down by and on authority. The newer concept is that the first concern of the educators must be life and personality, then after this, the subject matter. About mental hygiene, he says:

"Thanks to mental hygiene, we are understanding as never before, the dangers as well as the potentialities relating to the building of the self. For any person, disintegration and integration are very real

possibilities. Many of the hitherto inexplicable ills of life are now seen to be due to maladjustment of personality. The integration of personality becomes possibly the most insistent of all education objectives. Here, the better school program can have marked advantages over the ordinary course of study."

Dr. Kilpatrick ends his discussion with a paragraph which is so full of the psychiatric point of view that it is here quoted in full:

"The learning process, the curriculum, subject matter, get their basic definition as we see how the child learns and is affected throughout for good or ill by what he learns. We seek then for those under our care not an education which confirms our ideas and our ways, but a self-direction which results in the ever widening and deeper search for truer insight and the ever growing will to direct life accordingly with sensitive regard to all concerned. Our criterion is the welfare of the whole child ever growing in wholesome relations with all others."

It is interesting and distinctly cheering to note how much the principles of mental hygiene and child guidance are being applied to education.

The subject of "Mental Hygiene" is well handled in a subsequent chapter. The author of this chapter feels that emphasis should be put on a school organization in which maladjustments are **least likely to occur, but** he also realizes the importance of giving what he believes to be proper attention to the problem child. In discussing mental health, he considers concepts representing three schools of thought. These are self expression, adjustment and efficiency. The author did not state which concept was the most acceptable to him but the reviewer feels that no one is adequate in itself. It would seem that a mentally healthy person would necessarily have a successful integration of all three. In regard to curriculum, the author expresses the opinion that it ought to be constructed on a mental hygiene basis. One of the reasons he gives for his ideas is that pupils lose interest, make poor progress or become ill adjusted when the curriculum is planned without taking into consideration youthful interests. He also considers discipline as a part of mental hygiene and stresses the need for the development of a social attitude rather than a primitive one, on the part of those in authority. He advocates vocational guidance, psychological service for problem children and, in larger communities, psychiatric service for difficult cases. He would supply the service in rural communities by traveling clinics arranged much as they are at present by the Department of Mental Hygiene in New York State. He believes that schools should be supplied with psychological counsellors and visiting teachers, who would deal with

problem cases and work for better mental hygiene in the class room. The reviewer sees great danger in this portion of the program. It would seem that much harm can be done by personnel who do not always have adequate training for the important work expected of them. Many psychologists and visiting teachers do not have a reasonable knowledge of psychiatry which is so necessary for this type of work. In the reviewer's opinion, a program of child guidance which includes treatment of problem children should be undertaken only under the supervision of a physician who has had special training in psychiatry and children's problems.

The outline included for teaching "Health" is excellent. The reviewer believes that this is a valuable book and deserves reading by those who are engaged in handling children's problems, whether they be educational, physical or mental. A word might be said about the abbreviated report-form method of presenting the material. Although a great deal of information is condensed into a small space, it makes rather laborious reading, and, thereby loses some of its effectiveness.

FRANK F. TALLMAN.

Syllabus of Psychiatry: A Guide to General Orientation. By LELAND E. HINSIE, M. D., State Hospitals Press, Utica, New York, 1933. 348 pages.

This book is the embodiment of a series of lectures delivered as part of a course given by Columbia University for graduate physicians in neurology and psychiatry at the New York Psychiatric Institute. Dr. Hinsie's style is vigorous, and the subject matter he presents interesting. His wide experience in teaching graduate students, especially physicians of the New York State Hospital system, has made it possible for him to anticipate the questions which busy practitioners would like to have answered. It is an excellent review for those who have had time to keep up with the literature, and a guide for purposeful reading for those who find difficulty in knowing what fields should be covered by the well informed. In the author's words, its purpose is "to build up a new point of vantage from which one may gain a critical perspective of the several attitudes in order to see their relationship to one another."

The chief task undertaken by the author is to present two major approaches met with in contemporary psychiatry: the constitutional and psychodynamic. In addition, he gives more elementary material which would be helpful to workers in fields allied to psychiatry, especially social workers to whom some parts of the book are directly addressed. Medical students and general medical men would also find much of interest.

The first chapter moves rapidly through the contributions of various writers on constitution, barely touching on some, and summarizing the work of others. These summaries will be valuable to the reader for later reference. This same policy is continued throughout. In this particular chapter the foundation of constitution, heredity, is discussed in light of present day concepts, the theory of constitutional medicine is expounded, and therapy based on these principles presented. Considering the many sources of information, the reporting of which has been with a view to preserving the original ideas with as little modification as possible, the author has succeeded in skillfully weaving them together with enough of his own comments to give the chapter body and a remarkable unity.

The material considered in the next two chapters, although separately labeled for the purpose of differentiating between psychical and psychophysical, could better be placed under the latter heading. The first of these chapters sketches the development of the psychodynamic method of investigation. Many contributors are mentioned, with similarities and differences of the three chief exponents, Adler, Freud, and Jung particularly emphasized. With this introduction, the author takes up in more detail present-day Freudian analytic concepts outlining the evolution of instincts, the libido theory, and the more theoretical formulations of psychoanalysis known as meta-psychology. In the second chapter there is a rather full discussion of Kemp's theories and a table of his classification.

Throughout both these chapters Dr. Hinsie has sought to integrate the fresh material with that of constitutional medicine. The note that he sounds, not only in regard to his own attempt, but to future developments in the science, can best be expressed in his own words:

"It is possible to go back to Rostan's definition of constitution and to show that from the psychological standpoint there may also be an imbalance; it is what Jung has implied in the terms superior and inferior functions. The constitutional pathologist calls attention to the predominance of one set of conditions over others, just as the psychiatrist mentions the predominance of one group of mental attributes over others. Both emphasize the need for adequate correlation of body systems for the insurance of good health. Just as the constitutional pathologist speaks of interorganic equilibrium, so does the psychiatrist speak of what we may call interpsychological equilibrium. It seems reasonable to believe that the psyche responds to laws of heredity, that these laws are modified by environmental influences and that finally heredity and environment act upon the 'internal evolutionary destiny.' These are conceptions that have simply been borrowed from the field of constitutional pathology, but they seem to be usable in psycho-

pathology. Indeed, everything points to a consolidation of these two large approaches. It may not be far distant to a nomenclature common to both. Both talk of the same principles, but define the principles in terms familiar to specialists in their own field. The two are approximating one another. Internists are being psychoanalyzed. Psychiatrists are laying much stress on problems of internal medicine. They are even known to make ward rounds together—peacefully, helpfully.”

The heading of the next chapter, “Sociological Considerations,” is misleading, because it contains these and so much more besides. The casual reader who might not be interested in the statistical questions or in specific directions to social workers, might not read the whole carefully, and miss an entire outline of the neuroses which it contains, as well as observations on their origin and treatment. There is also an amplification of psychodynamic concepts built into the frame work of descriptive psychiatry. It is the most uneven chapter in the book, though the subject matter is valuable and holds the interest.

The last chapter, although short, repairs the lack of arrangement in the one preceding. Its two subjects, endogeny and exogeny, are presented with special reference to schizophrenia, though not exclusively so. It sketches the status of gross and histo-pathological findings in the psychoses, ending with a discussion of the importance of environmental and precipitating factors. The chapter is brief, to the point, and through introducing new material, has the effect of a summary of the book as a whole, and as such, rounds it off very successfully.

DANIELS.

The Single Woman: A Medical Study in Sex Education. By ROBERT LATOU DICKINSON, M. D., and MISS LURA BEAM. Pp. XIX, 469. Price \$5.00. Williams & Wilkins Company, Baltimore, 1934.

This book is the second volume in a series of case studies from the private practice of Dr. Dickinson, a gynecologist who has practiced in New York City for the last 50 years. The study is based on 1,078 records and it deals with the whole patient, her psychology, environment, emotional life, and her physical make-up. The first book of this series dealt with the married woman and no doubt has found its place in most psychiatric libraries. Since the first book entitled “A Thousand Marriages,” has proved its value, so this book will create a great deal of comment and be used as constant source of reference.

The book is divided into four parts: Health, sexuality, creative problems, and interpretation, the whole being composed of 17 chapters with an appen-

dix of 16 source tables. There is a general discussion in the first part of each chapter followed by a number of well-selected illustrated cases given more or less in physical and psychological detail.

The reviewer could well cite from many of the cases to prove the psychiatric value of this book, but it would be difficult to select any one case that is any better than the others. Part II is especially worthwhile and presents the matter of heterosexuality, homosexuality, and autosexuality in a very clear manner. The authors treat "the sexual and the emotional life as one. This is indicated because the patients have lived by this measure. The unity of life in all its processes is implied as one state slips into another—the maternal impulse into the sexual, desire into hatred, dream into insanity, work into hysteria, virginity into religion."

J. L. MC CARTNEY.

Human Sex Anatomy. By ROBERT LATOU DICKINSON, M. D., F. A. C. S.
Pp. XX, 325; 175 full page illustrations. Price \$10.00. Williams & Wilkins Co., Baltimore, 1933.

Dr. Dickinson besides being a well-known gynecologist, is a true artist, an observer of human nature, and a practical psychologist, and it is evident he has approached the subject of human sex anatomy with clear-thinking and unprejudiced analysis. This profusely illustrated atlas is made up of scaled drawings that Dr. Dickinson personally made from life as he examined several thousand patients since 1882.

As he states in his foreword: "It is time that we began building on detailed case records running through lifetimes in series counted in tens of thousands. In view of the everlasting gonad urge in human beings, it is a little curious that science develops its sole timidity around the pivtotal point of the physiology of sex. **** Our protests against the sensual detail and the exaggerations and credulities of pornographic pseudo-science lose force unless we ourselves wish succinct statistics and physiological summaries of what we find to be average and believe to be normal."

Psychiatry fully realizes that many of the maladjustments of mankind are based on a misunderstanding or misdirection of sex and the sex urge. But unfortunately very few psychiatrists have had the opportunity of properly studying normal sex anatomy and normal sex adjustment. Dr. Dickinson besides his incomparable drawings has contributed nine chapters of very sane discussion on this whole matter. He discusses the anatomy of both the male and the female and in his seventh chapter fully discusses "The Anatomy of Coitus." In this chapter he goes on to discuss the aver-

age sex life, coital responses, coital mechanisms, orgasm, and postures in coitus. "If we needed to give reasons for analyzing the anatomy of postures in coitus, other than normal interest in the subject, the need of knowledge on the following matters would suffice:

"(1) Relation between different postures and success and failure in conception.

"(2) Bearing of posture on degrees of mutual gratification and successful orgasm.

"(3) Varying relation during ejaculation between male meatus and external os.

"(4) Adjustment of effective pressure between the vulva and clitoris, and the male parts.

"(5) Adaptations of penetration according to the dimensions of vagina and penis.

"(6) Adaptations to special conditions, such as pelvic inclination and lower spinal curvature, varying location of female urinary meatus, or height of clitoris on symphysis, or pressure on uterus during pregnancy.

"(7) Comparative anatomy and physiology bearing on such matters as retention of semen, interlocking of penis and cervix, and rear entry.

"(8) Search for physical or physiological reasons for the specific theological teaching that all postures save one are both unnatural and sinful.

"(9) Variety of posture and behavior as a means of forestalling a monotony that may breed indifference, distaste, and divorce."

The author states in his discussion of the future: "Perfection of technique for physical sex response is starting to become part of lay teaching on marital hygiene, even before it is taken up by medical schools and medical societies. When the time comes that diagrams and descriptions of the normal functions of these universal organs are as generally acceptable and as much taken for granted as our pictures of other life processes, we shall doubtless wonder at our artificially fostered mystifications and many of our elaborately manufactured attitudes of shame and yet not lose our feeling that privacy for intimacy is good taste as well as enchanted delight. Then after the era when nakedness becomes a matter of course again, we may look for morbid curiosity to be replaced by legitimate information, and celibate teaching of innate dishonor in sex function to die, exploitation by cabaret to starve and pornography to be disarmed." In short, no psychiatrist can afford to deprive himself or herself of the reference value of this monument to scientific progress.

J. L. MC CARTNEY.

Modern Clinical Psychiatry. By ARTHUR P. NOYES. 485 pages. Price \$4.50. W. B. Saunders Company, Philadelphia and London.

This book contains a general presentation of psychiatry including both theoretical considerations and clinical descriptions. In the beginning chapters under the titles, Mind, Its Development and Purpose; Psychic Energy and the Dynamics of Behavior; Conscious and Unconscious Processes; Mental Mechanisms and Motives, the author deals with the functions indicated in a clear and comprehensive fashion. Mental mechanisms are discussed including repression, regression, sublimation, rationalism, conflicts, complexes and other mechanisms. These newer psychiatric concepts including psychoanalytic theories are all incorporated as a part of psychiatry, i. e. psychoanalytic principles are placed under this general field. Although Noyes, to a large extent, agrees with psychoanalytic principles in general he has reserved judgment about some of them and indicated limitations in others. In other words he does not accept all psychoanalytic theories without question.

The causes of mental disease discussed from the standpoint of organic, hereditary, constitutional and psychogenic causes are very satisfactorily dealt with and proper emphasis is given to all factors. The description of general symptoms include the consideration of consciousness, affectivity, memory, attention, ideation and other mental activities. A study of constitutional types includes those of Kretschmer and of Kahn and there is a valuable chapter on the examination of the patient. Clinical descriptions including manic-depressive psychoses, schizophrenia, paranoia, general paresis, alcoholic psychoses and the various other groups, while not extensive, are clear and are illustrated by a number of case histories.

The discussion of the psychoneuroses (for which the author suggests the term minor psychoses) is exceptionally good. An historical outline of these disorders is given to indicate how present concepts were finally reached and this covers the work of Chareot, Beard, Weir Mitchell, Janet and finally Freud and others. While some neurologists may feel that endocrine, vegetative nervous system or body chemistry factors have received too scant attention, the author clearly explains his position in this respect and the burden of proof is with those who regard these organic conditions as primarily causative in the psychoneuroses.

The chapter on mental deficiency gives a brief but excellent survey of this field. There seems no general agreement as yet among psychiatrists as to the classification of mental defectives from the standpoint of intelligence quotients. Noyes states that those with I. Qs. between 20 and 40 are designated as imbeciles and those between 40 and 70, morons. Others have

placed those with an I. Q. between 50 and 75 in the moron group. In the New York State Department of Mental Hygiene patients with I. Qs. between 25 and 49 are grouped as imbeciles and those between 50 and 69 as morons.

While the author advances no new theories comparable with those of Jung, Adler, Bleuler, Kempf and others, to say nothing of Freud, he consolidates the important psychiatric knowledge which has come from these and other sources in a book which is a valuable contribution to American psychiatry. Despite its 485 pages, one might complain of its brevity as almost every chapter might be extended into a good sized monograph. Although the part played by maladjustment in childhood is repeatedly discussed in relation to mental disturbances, the author has not attempted to deal with child guidance as a specific topic. Likewise forensic psychiatry is not specifically discussed, although referred to from time to time.

In common with the great majority of psychiatric textbooks, parts of this book will not be easy reading for the general practitioner. However, this is not a criticism of the way the book is written. It appears to be almost impossible at the present time to deal with the science of psychiatry in altogether simple terms. Popular treatises on many other sciences including geology, anthropology public health appear in literature from time to time. Such a treatise on psychiatry as a companion volume to the present one would meet the need of less technically trained readers.

The book built around lectures to medical students will serve not only as an excellent text book for students but will be a valuable addition to the library of the psychiatrist, the neurologist and the general practitioner who wishes to gain an excellent, trustworthy and comprehensive survey of the psychiatry of the present day. It is indexed and there are selected reading references following each chapter. There is indeed little to criticize in the book and much to commend it.

BROWN.

Habits—Their Making and Unmaking. By KNIGHT DUNLAP. 326 pages. 1932. Liveright, Inc., New York.

In the preface, the author calls attention to the fact that during the past few years it has been difficult for even the most cautious psychologist to avoid applications of psychology to personal and social problems. He further feels that the science of psychology has now reached a point where it can be used to assist individuals in distress. This has come about by a fuller understanding of the inter-relation of processes of learning and unlearning and of habit making and breaking. It is evident that this book has been

written not only for the professional reader, but also for the non-professional reader.

For the purpose of review it would appear that the book could well be divided into two parts. The first part, Chapters I to VIII inclusive, is inclined to be somewhat technical and theoretical. The second part, Chapters VIII to XII inclusive, is far less technical and, no doubt, will prove much easier reading for the non-professional person. Chapters IX and X will be of the greatest direct concern to the psychiatrist.

Beginning with Chapter I on "The Problems of Habit and Learning" the author states, "It is no great exaggeration to say that living is for the most part learning, and that the remainder of life is merely the carrying on in practice what has previously been learned." He continues, "if we limit the term 'learn' somewhat narrowly, we can truly say that a definite process of learning is the formation of a habit; and conversely, a habit is a way of living that has been learned." The total of the habits then make up the character of the individual as he appears to other people. The author then goes on to describe the ways in which man reacts to his environment. He discusses quite at length the instincts which he terms "unlearned habits." It would appear that some instincts which have heretofore been looked upon as such are, in this book, considered as learned responses which have taken place even before the birth of the individual.

Chapter II considers the fundamental principles of learning. Here there is described the various types of responses such as action which is overt and definite, thinking without action or impulsive response and conditions when the action is a part of the thought process itself. Reflexes receive considerable attention, also the methods by which reflexes can be modified. He then postulates, does the learning vary with the amount of thinking involved or with the type of thinking? In determining the types of thinking there must be included, feeling. While mild feeling may be favorable for learning, intense feeling may be unfavorable. The desire to learn is of distinct benefit whether this be immediate or ultimate. This hypothesis then appears "the process through which we learn is not, in general, the process we learn." This is illustrated by learning to throw darts, for in the end he considers the darts thrown wrongly have been as effective in the learning process as those thrown "successfully," if the degree of thought has been the same. It would seem, on the other hand, that "success" was a greater factor in learning than appears from this statement. Voluntary and involuntary action is discussed in the third chapter. Chapter IV reviews the various physiological theories of learning and the works of Pavlov. There is considerable discussion on the "conditioned reflex." The

next chapter on "The Process of Learning" is highly technical. Here are stated the hypotheses of learning which are called, (1) the Alpha theory or the old "brain-path" theory; that repetition of responses increases the probability of its recurrence, (2) Beta theory which is the reverse of the Alpha: repetition of a response decreases its recurrence, and (3) Gamma theory: that repetition has no effect upon the probability of recurrence. In Alpha learning, practice will fix a habit; this is called positive practice. In Beta learning, practice will abolish a habit and this is called negative practice. Chapters VI and VII on "The Conditions of Efficient Learning" and "Retaining, Recalling and Relearning" contain much which should be of value not only to the psychologist but also to those engaged in teaching.

Chapter VIII is entitled, "Remembering and Forgetting." For memorizing, Dr. Dunlap gives several valuable suggestions. One important procedure is the going beyond the mere thinking of the item and thinking about it which involves thought of the relation of the item in question to other items. Desire to learn is also an important factor and one must keep everlastingly at it, persistence being essential. Constant evaluation of progress the author states is to be avoided, in other words, "The effort to learn interferes with learning." "The effort to forget, on the other hand, is equally detrimental to forgetting, that is, it assists learning." The chapter on personal and social adjustment should be of distinct value to the medical man as well as to non-professional readers. Here the author gives an excellent exposition on the need for consideration of the environment as it operates in producing maladjustment and the types of maladjustments produced. Maladjustments, he states, are in the most cases acquired by a process of learning. They can be removed then only by a process of learning.

In the chapter on "Breaking of Persistent Bad Habits," the author considers, in general, three types of habits, namely: stammering, ties and bad sexual habits. He outlines with considerable detail his method of breaking the habit of stammering. Shorter consideration is given to the other two. Relative to stammering he states that the one thing that the patient can do and do well is to stammer. A person troubled in this manner stammers involuntarily. What is then taken up in the process of cure is to teach the patient to stammer voluntarily in the same way he has stammered involuntarily. He must then practice stammering, but only under the guidance of an expert psychologist. It is essential that the desire to be free from the habit exist and the whole procedure made entirely clear in the patient's mind before the treatment starts. Furthermore, assurance must

be conveyed that the method will succeed. This process of teaching the patient to stammer voluntarily is called negative practice. At a certain point in the treatment positive practice should be brought into play when correct speech is taught. With daily practice periods, some cases clear up in three months, others require six months. In the negative treatment of masturbation the author points out that a third party, preferably a mature physician, should at all times be present. Homosexuality has not yielded to treatment with the same success as the other habits mentioned. In all this Dr. Dunlap does not entirely eliminate medical and neurological treatment but offers his treatment after nervous and other conditions have been found non-existent.

The last chapter on "Learning Ability and Intelligence" will be of much interest and value to those engaged in psychometric testing. Although it offers little new it will act favorably in checking those who have placed too much value on a psychometric test. In this chapter he outlines three types of intelligence: Intelligence I, designating knowledge and skill; Intelligence II, designating learning ability. He goes on to show that the usual psychometric tests indicate Intelligence I, but offer little information on Intelligence II. The more general the intelligence test, the less its value.

The book is well written and even though much technical information is incorporated, numerous examples which are easily interpreted are given. The bibliography is well arranged as to topic, but it would seem that the book would have even more value if an alphabetical index had also been added. Perhaps the bibliography could be followed more easily if placed at the end of each chapter.

Although in the preface, Dr. Dunlap assures the reader that his methods have been tried and found curative it appears that if these methods are to be received with favor, complete case histories should be published. Perhaps the author is looking forward to the publication of such a treatise which will certainly be of interest to the professional group.

CHARLES E. ROWE.

**Presentation by the Thomas William Salmon Memorial Committee
of a Bas-Relief Portrait of the Late Dr. Thomas William
Salmon to the Psychiatric Institute and Hospital**

Upon the invitation of the Salmon Memorial Committee and the State Department of Mental Hygiene, exercises were held at the State Psychiatric Institute and Hospital in New York City, on the afternoon of Friday, January 26, 1934, in connection with the presentation to the Institute by the Commissioner, of a bas-relief portrait of the late Thomas W. Salmon. A large number of friends and former associates of Dr. Salmon, including Dr. Willard C. Rappleye, dean of the College of Physicians and Surgeons, and other members of the medical faculty, attended the exercises. A bronze bas-relief portrait of Dr. Salmon had been executed by Mr. Charles Keck of New York City, for the Salmon Memorial Committee and had been installed in the lobby entrance to the auditorium on the eighth floor of the Institute. Dr. Clarence O. Cheney, director of the Institute and professor of psychiatry in the College of Physicians and Surgeons of Columbia University, presided at the exercises. The presentation for the Salmon Memorial Committee was made by Dr. William L. Russell. The portrait was accepted for the State and for the Institute by Dr. Frederick W. Parsons, commissioner of the Department of Mental Hygiene. Dr. William Darrach, dean emeritus of the College of Physicians and Surgeons, delivered the memorial address.

The following is a report of the program:

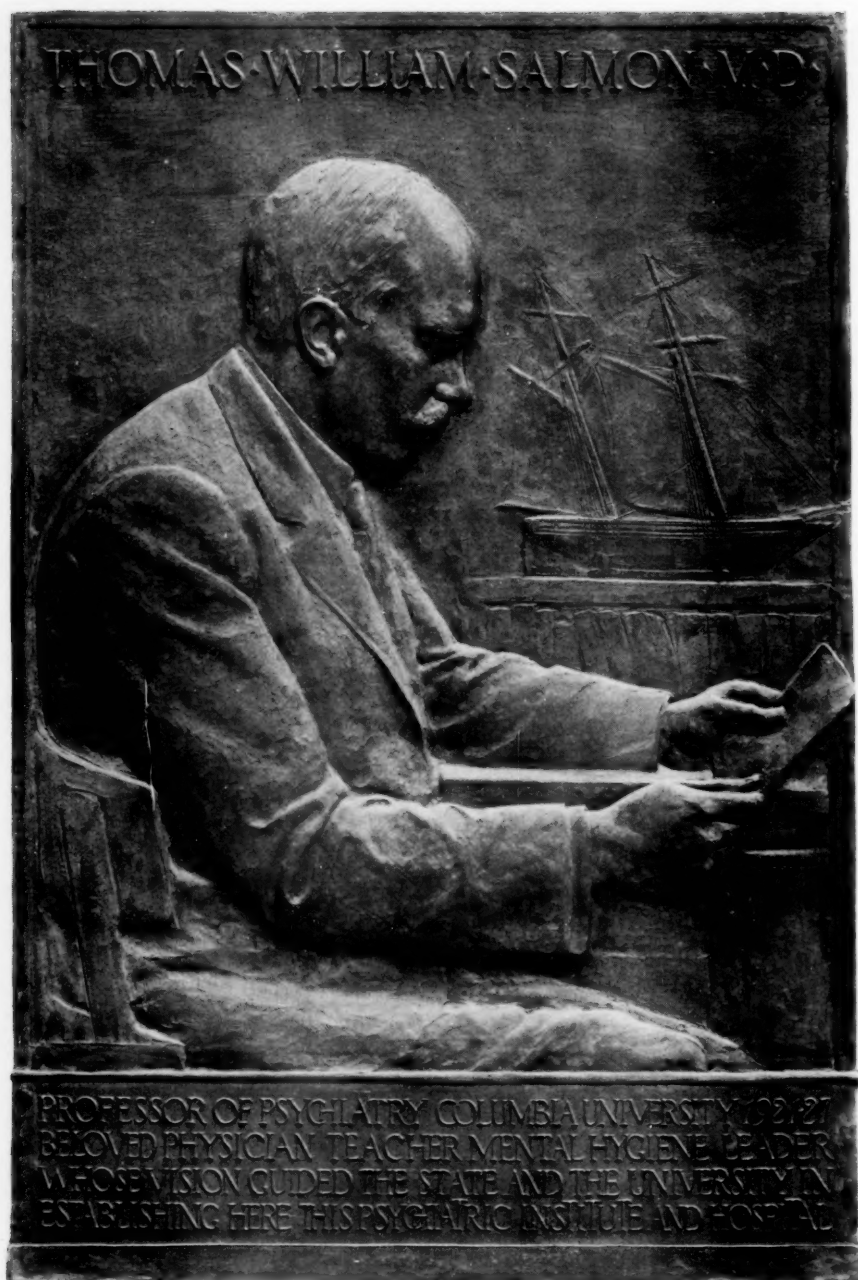
The CHAIRMAN: We are gathered together today to pay tribute to a great physician and teacher and to a good and kind friend. An occasion such as this gives us an opportunity to rededicate ourselves to the ideals and principles for which he strove and under which he lived. There are many persons throughout this country who would, I am sure, wish if possible, to join us in this tribute and from many such persons we have received word of regret that they are unable to attend. Time does not permit mentioning these persons individually, but I do wish to read from a communication that has been received from Governor Lehman. He writes:

"Were it not for the press of official duties in connection with the legislative session, and the necessity of keeping engagements made for January 26, I should have been delighted to have attended the exercises commemorating the service which Dr. Thomas W. Salmon rendered to the State. It was largely through his efforts that the State of New York and Columbia University joined forces, and the New York State Psychiatric Institute and Hospital is the outcome of that union. It is, therefore, particularly fitting

t
y
e
k
n
e
r
-
-
s
s,
l,
e

a
n
d
y
to
d
g
n

s-
ry
r-
It
ia
nd
ng



that Dr. Salmon's friends should mark that interest by providing an official record in the structure for which he so earnestly labored. The plaque which is being presented and accepted today is a beautiful and lasting inspiration."

I have now, the honor of presenting Dr. William L. Russell representing the Salmon Memorial Committee, who will make the presentation of the memorial tablet.

Dr. RUSSELL: Those of us who knew Dr. Salmon personally will, on this occasion, be likely to recall the deep feeling and the earnest purpose which, soon after his death, found expression in the establishment of the Thomas William Salmon Memorial Committee.

The announced purpose of this committee was to keep alive the memory of a personality of singular attractiveness and power, who, during his life, had given vitality, substance, and momentum, to a significant and widespread movement for the better understanding, treatment, and prevention of mental disorders, and for the promotion of mental health. It was felt that when, in the course of time, the history of this great movement should be written, Dr. Salmon might well appear as another of those outstanding figures in the history of medicine, who shaped progress, not so much by scientific discovery, as by the quality of their personalities and by their clear understanding and unswerving devotion in the establishment of some new or unaccepted principle of medical thought and practice.

The response to the committee's announcement was prompt and generous. It revealed clearly the extraordinarily deep respect and affection which was felt for Dr. Salmon by those of his contemporaries who best knew him and his work. Contributions amounting to more than \$100,000 have thus far been received by the committee. More than half the contributors have been physicians. It has thus been made possible for the committee to accomplish its principal object of providing, in the New York Academy of Medicine, for a series of lectures to be given, year by year, for the advancement of psychiatry and mental hygiene, and to be designated The Thomas William Salmon Memorial Lectures. The first of these series was given by Dr. Adolf Meyer, the second will be given in April next by Dr. Charles Macfie Campbell, and the third will be given by Dr. William A. White in 1935. The lectures are managed by a special committee of the academy, which, from the income of the fund, has also from time to time been able to make small, though timely appropriations to assist various psychiatric research projects. This committee has also placed in the halls of the academy an oil portrait of Dr. Salmon.

Although the main purpose of the original memorial committee was the

establishment of the Salmon lectures at the academy, the response to the appeal for funds was so generous that the committee has felt free to proceed further in accomplishing the fundamental purpose for which it was created. To this end, it greatly appreciates the opportunity and privilege of placing in this Institute a memorial to Dr. Salmon. It seems especially fitting and desirable that such a memorial *should* be placed here. Directly and indirectly, Dr. Salmon, during his comparatively short career in psychiatry and mental hygiene, rendered invaluable service to the State of New York. In every activity and project with which he was connected, he contributed something of substantial and lasting value, and much of his work was carried on in and for New York. Much that he contributed has, indeed, merged into the general stream of progress, and its identity with its originator may not long survive. A few developments, however, which he contributed greatly to, stand out rather prominently. No state benefited as much as New York by the measures he instituted for the better control of the influx of insane and feeble-minded immigrants, which was adding greatly to the problems of the State institutions. The psychiatric pavilion at Ellis Island, the organization and methods for the examination and disposal of cases which he established there, and the legislation which he helped greatly in formulating and securing, remain as monuments of his service in this field to the State, to the country, to the immigrants, and to humanity. The comprehensive plan for the better management of the problem of mental deficiency, which was adopted in part by the State, was laid out by him, and he contributed much to its adoption and organization. He planned and did much to accomplish the advancement of psychiatric service in the State Department of Correction. The system of statistical studies employed in the New York State hospitals, its adoption by other states, and eventually by the Federal Bureau of the Census for the whole country, had its origin in studies instituted by him and its extension to its present proportions had its inception under his stimulus and guidance. Officially or unofficially he was appealed to by many state and local officials and by officials of private organizations, and most of the mental hygiene and psychiatric developments of the period of his activity were either instituted by him or bear marks of his ideas and efforts.

A very special reason, however, for placing a memorial to him in this Institute is the part he had in its establishment. He saw the significance and advantage of a union of State and university in psychiatric service, education, and research. He had long been looked to for advice and aid by State authorities and he was professor of psychiatry in the university. The confidence in him that was felt by the authorities of both had, therefore,

much to do with bringing about this development, the importance of which to the future of psychiatry and mental hygiene can scarcely be overestimated.

The bronze bas-relief portrait of Dr. Salmon depicts little more than a shadow of the warm and vibrant personality with which many of us once moved and talked. It will serve, however, to show to those who did not have that privilege, the esteem in which he was held by his contemporaries, and the part he had in the establishment of the Institute. Those who read, will note the position he held in the university, and his service as practitioner, teacher, and mental hygiene leader. They may thus be led to seek further information concerning him and concerning his work and contributions.

In the modelling of the portrait, the sculptor was guided by a photograph that was taken in France, in 1918, by Dr. Harvey Cushing. In this photograph, Dr. Salmon is shown in his office at the headquarters of the A. E. F. It was thought that, in the bas-relief, it would be more appropriate to depict him in civilian clothes, instead of in his uniform as shown in the photograph. Preliminary sketches for the bas-relief were made by Dr. Salmon's son, Edward. He also, with Mrs. Salmon and the members of the sub-committee of the memorial committee, gave Mr. Keck, the sculptor, what cooperation they could in enabling him to produce as good a likeness as was possible. Our humble hope is that those who look upon it may, in some degree, discern the fine qualities that distinguished this rare personality.

Mr. Commissioner, in behalf of the Thomas William Salmon Memorial Committee I now formally present to you, and to the New York State Psychiatric Institute and Hospital, the bas-relief portrait of Doctor Salmon which, with your approval, has already been placed on the wall of the lobby of this hall.

The CHAIRMAN: I beg to present Dr. Frederick W. Parsons, Commissioner of the Department of Mental Hygiene, who will speak in acceptance of the tablet.

Dr. PARSONS: To accept on behalf of the State a tablet signaling the distinguished service of a close friend is an affecting experience. Even though a half dozen years have passed since the untimely death of Dr. Thomas William Salmon his spirit lives anew today and it will influence our psychiatric aspirations so long as we who are now present continue to breathe. Than the New York State Psychiatric Institute and Hospital no place more greatly deserves to have within its walls a tablet commemorating the life of him whom we remember today. This structure was his idea, and while others cooperated, his was the moving spirit. When striving for

others he had a long arm. In this endeavor it reached from Columbia University to the State Capitol in Albany and only a few know the keys he touched between and the stops he manipulated. The result of the cooperation of State and university is this building and its work is what he planned. No recital of what Dr. Salmon did for psychiatry in the Western Hemisphere would compass his achievements. Dr. Russell has recalled many projects but his principal work was kindling in the hearts of those with whom he came in contact a glowing sympathy for the unhappy group to which he was so strongly attached. I had the rich experience of working with Dr. Salmon, and on more than one occasion a portion of our holidays was spent together. Only a week before his death we parted in the twilight of one evening at a lonely railroad station, he having accompanied me to the train which was to bear me home. During the days preceding the end of the holiday, as on other occasions, we talked of many things and I know this Institute, then under construction, occupied an important place in his interests as did everything which touched the lives of people struggling with a mental handicap. He was so anxious that it would fulfill the intended purposes.

We here today do not need a tablet in honor of Dr. Salmon, but we will pass and others will follow. They will not have known him. Perhaps as countless students pass into this room some will catch a portion of his zeal, the reflection of which can be found in the adjoining corridor, and carry on from where he and we leave off.

New York State is honored by having in this building a memorial to Dr. Salmon, and in the name of the People of the State of New York, with the approval of the chief executive, I accept this beautiful, inspirational expression of the high regard in which Dr. Salmon was held by his professional associates, marking as it does, and as it will do for all time, the culmination of his efforts to have the State of New York and Columbia University unite in a movement to ameliorate the lot of persons whose betterment was Dr. Salmon's life work.

The CHAIRMAN: We are honored today by the presence of Dr. William Darrach, dean emeritus of the College of Physicians and Surgeons, who is with us as a representative of the president of the university and of the faculty of the medical school. As dean of the medical school at the time the Columbia-Presbyterian Medical Center was being organized and while Dr. Salmon was professor of psychiatry, and working as he did with Dr. Salmon on the project of the cooperation of the State and the university in the development of a psychiatric institute as a part of the Medical Center, Dr. Darrach is exceptionally well qualified to speak of Dr. Salmon's

work and efforts. He knew him as a man, as a teacher, administrator and physician. I take great pleasure in presenting Dr. Darrach to this audience.

Dr. DARRACH: We are gathered here to do honor to a vivid personality. We have placed upon the walls of this institution a tablet which is a delightful and faithful reminder to those of us who came under the influence of that personality. It will stimulate those who come after, to learn more of his qualities and efforts. It will prove an incentive to all of us to live up to his ideals and to endeavor to cause to come true the dreams and plans which were so dear to his heart, for he was a dreamer of dreams, but unlike most dreamers he had the added ability to carry those dreams through to fruition.

Thomas William Salmon was a rare personality—in many ways a surprising personality. He had strong outstanding qualities but I think it was his well roundedness that made him so pre-eminent. Most of those present are far better qualified than I am to estimate his abilities as a psychiatrist. To us working in other fields of medicine he seemed to have, to a high degree, the knowledge and skill we needed in the solution of our problems, but the other sides of his character impressed us even more. He was always open minded and a good listener. How few of us are good listeners. He patiently heard all of our story and that of our patient. He listened not as an austere judge, but as a sympathetic friend. His questions were kindly questions and one soon realized that he had that precious quality of sympathetic understanding. When he had drawn out all the information he needed—and we marvelled at how much more he had obtained than we realized was there—he began to discuss the situation, and always from our point of view or that of the patient. As he talked on, with that winsome humor and gentle voice, with a captivating smile seen even more in his twinkling blue eyes than on his lips, the problem seemed to simplify and the answer became apparent even before he had definitely stated it. Usually it was not until later on, when we thought things over, that we realized how convincing his arguments had been or how we had been won over to his side. He was the most gently convincing man I have ever known.

I remember well his appearing in Coblenz with a noted British psychiatrist whom I knew to be quite firmly opposed to Tom's ideas of handling the war neuroses. They dined with the chief surgeon of the 3rd Army and his staff and we were completely fascinated by Tom's apparently rambling, but most amusing talk. As we broke up, our British friend suddenly said "Salmon, I'm beginning to think there is much to be said for the plans you outlined to me this morning. At first they sounded quite impossible, but I'm wondering if you really may not be quite correct about it all."

We thought he had been entertaining us, but all the time he had been trying to convince his guest.

As the son of a country practitioner he realized early what a splendid opportunity for service lay in what he called real doctoring. On leaving school he taught for two years, which he later felt was not too bad a substitute for college. Within a short space of time his father, mother and brother died and he found himself almost alone in the world. Lack of financial resources did not deter him and he earned his way through the Albany Medical College, graduating in 1899. Almost immediately he married and started in general practice. All seemed well, but soon came another major discouragement in the form of impaired health and he had to lay up for repairs in the Adirondacks. After this followed work at the Willard State Hospital for the Insane. Here for a few years he undoubtedly learned much of his special branch of medicine. In the light of what happened ten years later, we must imagine that routine care did not occupy all his energies. I have known few men who were less bound by tradition and custom. He had that rare combination of ability to face facts, to plan how existing conditions could be improved and the courage to carry those plans into effect. This means keen observation, unbiased constructive thinking and courageous and continued action. During his ten years' service in the Marine Hospital Corps he must have done a great deal of constructive thinking, for when in 1912 the opportunity came for this work with the National Committee for Mental Hygiene he was ready to take full advantage of it. In the same way he was prepared for his next great chance—the handling of the war neuroses. His plan seemed so simple and so true, at least to the lay mind, that one wondered why any other method should have been attempted. "You see, doctor, these fellows aren't very different from all of us who get into the advance area. We all get scared to death at times if we have any imagination at all. They are subjected to terrific emotional strains and they lose their balance. When they are in that state of mind and find themselves labelled not only 'sick' but 'shell shocked' and are told that several times a day, as they are moved back and back toward a nut hospital—do you wonder they gradually learn to believe it? Now doctor, if they can be stopped early, rested, fed and reassured, 95 out of a hundred can be returned to duty. But you have to catch them before this idea gets frozen."

After the war was over he might easily have rested from his labors with the satisfaction of work well done. But that was not his way. Those boys were still his responsibility and their future care must be provided for. By letters and articles, by pleadings at Washington and elsewhere, by con-

vincing, logical argument, was their cause upheld until there were established places for their housing, and personnel provided for their care.

Either his work with the National Committee, or his accomplishments for the war neuroses would be enough to mark him as an outstanding successful man. But I personally believe his later contribution was of even greater importance. During the period of reorganization of the medical school and the planning of new buildings, Salmon played a most important role. He it was who brought psychiatry into the medical school. I do not mean merely that he insisted that the men working in this field should take their proper status with the other departments, nor that the medical students should be taught psychiatry. What he accomplished was to make those of us who are working in other fields realize that we could not solve our problems without the help of his group. Whether we are trying to repair injuries, cure or alleviate disease, or avoid their appearance and development we must consider and handle the mental problems of each individual. This change was not brought about by public oratory or formal demand but by quiet persuasion and convincing example and proof. Before his era we in surgery and medicine thought of psychiatry in terms of the terminal stages requiring segregation. He made us conscious of the necessity of considering and helping the mental aspect of every patient who is entrusted to our care. How very fitting it is, therefore, that in this Psychiatric Institute, standing here as an integral part of the group of buildings known as the Medical Center, and typifying the integration of psychiatry with general medicine, we should place this tablet in Tom Salmon's memory.

His name will be remembered as one who brought about this very vital change in attitude of the practicing and teaching physician. The medical profession and the public at large owe him a great debt of gratitude for what he accomplished. But there are many, many individuals who remember him in a more personal way. His work lay not only in general principles and plans of organization but in practical individual problems. Many men and women today are meeting their daily problems in peaceful accord and happy adjustment as a result of his efforts and understanding. Deep in their hearts is a sense of obligation and undying gratitude for that glorious personality. This silent army also pays daily tribute to him as they devoutly thank their Maker that Tom Salmon lived and still continues to live in their daily lives. They need no tablet to remind them.

The CHAIRMAN: I feel that I should be loath to have these exercises pass without a word of my own experience with Dr. Salmon which was indicative of his interest in the development of the Psychiatric Institute. I recall one evening in 1919 when it seemed that in the near future a new

institute and hospital might be constructed on a plot near the East River, which at that time was considered available to the State through a gift from the city. Some events had occurred that made it seem possible that the hopes of those of us who had been connected with the Institute might be realized at an early date. Dr. Salmon was enthusiastic and he, Dr. Kirby and I spent the evening in Dr. Salmon's office discussing the type of building that might be suitable for an institute and hospital. An outstanding impression that has remained with me was that of Dr. Salmon sketching floor plans and working in more or less complete details at that time. Dr. Kirby and I returned to the Institute that evening and worked long into the night making a draft of proposed legislation for removing the Institute from Ward's Island and establishing an Institute and Hospital in New York City. The law as finally passed contained many of the details that we talked over that night, 14 or 15 years ago. I mention these incidents to point out that Dr. Salmon's interest in the development of the Institute and Hospital was one that went back many years and even antedated the hope that at some time the Institute and Hospital would be a part of the Columbia-Presbyterian Medical Center.

As Dr. Darrach has indicated, to those of us who are connected with the Institute and medical school at the present time and to those who will come after us, the tablet that has been placed here today will be a constant reminder of Dr. Salmon's enthusiasm, wide interests and forward-looking practices and it will be a stimulus to try to attain the aims which he set out to accomplish and which unfortunately he was not able to see entirely fulfilled.

It is very gratifying to us that Mrs. Salmon can be with us today and we have attempted to do honor to her in a small way by arranging for an informal tea, where she may have an opportunity to again greet Dr. Salmon's and her friends and associates and where we shall hope also to have the opportunity to present to her those who have not previously had the privilege of knowing her.

We now conclude the exercises here and invite all those present to remain and have tea with us, which will be served in the reception room on the main entrance floor.

At the tea held for Mrs. Salmon following the exercises, Mrs. Eleanor Clark Slagle, Mrs. Mortimer W. Raynor, Mrs. Clarence O. Cheney and Mrs. Leland E. Hinsie assisted.

NOTES

—Dr. Lawson G. Lowrey and Dr. Christina M. Leonard, psychiatrists, formerly connected with the Institute of Child Guidance, have opened offices for the private practice of psychiatry at 145 East 57th Street, New York City. Simon H. Tulechin, formerly psychologist for the Institute has also opened an office in the same building.

—The 1934 series of Salmon Memorial Lectures will be given by Dr. Charles MacFie Campbell, professor of psychiatry at Harvard Medical School, and medical director of the Boston Psychopathic Hospital. The lectures will be given at the New York Academy of Medicine on the evening of April 13, 20 and 27, 1934. The subjects are as follows:

1. Trends in Psychiatry.
2. Classification Versus Dynamic Analysis.
3. Conclusions and Suggestions.

—The American Association on Mental Deficiency will meet at the Waldorf-Astoria Hotel, New York City, just prior to the meeting of the American Psychiatric Association on May 26 to 29, inclusive.

The sections on May 26 will be those particularly in relation to special classes and the psychological aspects of mental deficiency. A trip to Letchworth Village is planned for Sunday, May 27. May 28 and 29 the papers essentially will be on the pathological, psychiatric, medical and sociological aspects of the problem.

—According to the recent announcement of the Federal Bureau of the Census there were 318,948 mental patients resident in State hospitals in the United States on December 31, 1932. The increase during the year was 13,917 as compared with an increase of 13,031 in 1931. New cases admitted to State hospitals during 1932 numbered 67,083 and readmissions 16,377. The ratio of resident patients in State hospitals to the general population is continually increasing. In January, 1927, the rate per 100,000 of general population was 218.9 and on December 31, 1932, it was 254.8. The psychoses showing noteworthy increases since 1927 include dementia præcox, manic-depressive psychoses, general paralysis and psychoses with cerebral arteriosclerosis. It is estimated that the State hospitals are caring for about 80 per cent of all mental patients in the country. If this estimate is correct the total patients in institutions for mental disease in the United States at this time (April, 1934) would be approximately 420,000.

—An attractive program has been arranged for the annual meeting of the American Psychiatric Association, which is to be held at the Hotel Waldorf-Astoria, New York City, May 28 to June 1, 1934. The opening sessions on Monday, May 28, will be conducted by the Section on Convulsive Disorders and the Section on Criminology and Conduct Disorder.

On Tuesday morning, the president's address will be given and in the afternoon there will be a joint session with the American Association for the Study of Mental Deficiency and a section meeting on the relations of psychiatry to general medicine. The program on Wednesday and Thursday will deal with psychoanalysis, common hospital functions, the endocrines and the vegetative system and other clinical and pathological studies.

The annual dinner will be held on Wednesday evening. The usual round-table meetings will be conducted on Thursday evening. On Friday morning section meetings will relate to extramural placement and miscellaneous studies.

The committee on arrangements is headed by Dr. Clarence O. Cheney, chairman; Dr. C. C. Burlingame, vice-chairman; and Dr. Howard W. Potter, secretary.

Scientific and commercial exhibits will add to the interest of the meeting.

—Grants from the Thomas W. Salmon Memorial Fund for psychiatric studies during 1934 have been announced by the New York Academy of Medicine as follows:

Muriel T. Bashlow, Judge Baker Foundation, for studies on "psychometric results of clinical psychotherapy in cases of emotional blocking among juveniles."

Clarence O. Cheney, M. D., New York Psychiatric Institute, for "Endocrinological studies in psychiatric patients."

Franklin G. Ebaugh, M. D., Colorado Psychopathic Hospital, Denver, for "Studies on treatment of epilepsy with emmenin, the name applied by Professor Collip of McGill University to a hormone he has isolated from human placentas."

Norman Fenton, M. D., Bureau of Juvenile Research, California, for "A study of the mental and social traits of four hundred boys in a state correctional school and the relationship of these traits to later behavior on placement."

John Levy, M. D., New York, for "An experimental study of therapeutic approaches to enuresis."

Jacob Kassanin, M. D., clinical director, State Hospital for Mental Dis-

eases, Howard, Rhode Island, for the purchase of an oscillogram for "Investigation of the peripheral circulation in schizophrenia."

James L. McCartney, M. D., director, Classification Clinic at Elmira, New York, for a "Classification of Prisoners."

Lloyd H. Ziegler, M. D., professor of psychiatry and neurology at Albany Medical College, for a "Study of psychopathic effects and their relation to the surface temperature of the body."

The Editorial Board of the Archives of Neurology and Psychiatry, for the reprinting and distribution of certain articles dealing with the training of the neurologist and psychiatrist.

—The Dominion Bureau of Statistics of Canada has issued its first annual report of mental institutions, which covers the calendar year 1932. On January 1, 1932, there were 58 institutions caring for mental patients in Canada, including 28 public hospitals for the insane, feeble-minded and epileptic; 3 public hospitals for the feeble-minded; 3 training schools for feeble-minded children; 2 psychiatric hospitals; 16 county and municipal institutions; 4 private institutions and 2 psychopathic hospitals administered by the Department of Pensions and National Health.

On December 31, 1932 there were 19,498 males and 15,781 females on the books of these institutions, including 1,989 on parole. First admissions during 1932, totaled 7,307 and readmissions 1,886. The total admissions, including 597 transfers, were 9,790. There were 4,948 discharged, of whom 1,391 were described as recovered, 2,175 as improved, 1,034 as unimproved, 330 as without psychosis and 18 unclassified. The deaths totaled 2,325.

The report is based upon the classification of mental diseases adopted by the American Psychiatric Association, and includes standardized tables, comparable to those used by hospitals for mental patients in the United States and which are based upon individual schedules for each patient admitted, discharged or deceased during the year.

The report represents a long step forward in the standardization of statistics of mental disease and will facilitate international comparisons. Unfortunately the present report does not differentiate clearly between statistics of patients with mental disease, and those for mental defectives and epileptics. In the United States it is customary to report separately for each group, and it appears desirable to make such practice uniform, as each group presents problems distinct to itself.